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THE ONTARIO IROQUOIS TRADITION

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THE ONTARIO IROQUOIS TRADITION

by J. V. Wright

Ottawa, 1966

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Preface

It has been more than ten years since Dr. Richard S. MacNeish published the evidence for the *in situ* theory of Iroquois origins. During this period a substantial amount of new data pertaining to the Iroquois of Ontario, New York, and Pennsylvania has been published. The purpose of the present report is to examine the Ontario portion of the *in situ* theory in light of new data. In particular, the earlier complexes involved in the Ontario Iroquois sequences and their addition of more than 300 years to the events traced by Dr. MacNeish will be considered. It is in this area that the major addition to the *in situ* theory is made. Minor modifications to the later developments envisioned by MacNeish are also suggested. Of major importance, however, is the further substantiation of the *in situ* theory as a central tenet of Iroquois archaeological studies. The greatly increased body of information has simply extended the historical depth of the Ontario Iroquois and, as anticipated, has added to the complexity of the cultural processes involved.

To emphasize the cultural continuity seen in the Ontario sequences, the tradition has been used as the central concept in ordering the developing complexes. Further, the processes of convergence, expansion (horizon), and divergence have been used to subdivide the tradition into three stages. In short, concepts stressing development and continuity have been sought, and inhibiting categories have been avoided. Because of the nature of the archaeological remains from Iroquois sites the formulation of such a system is felt to be possible, and a broader application is not necessarily advocated.

A debt of gratitude, which cannot be fully expressed in this brief preface, I owe to Dr. J. Norman Emerson, who stimulated my interest in Iroquois archaeology and unstintingly made available pertinent unpublished information. His guidance and assistance represent a major factor in the compilation of the present report. Dr. Emerson, Dr. Richard S. MacNeish, and Dr. William A. Ritchie read the report and made a number of valuable suggestions which I gratefully acknowledge. I also owe a debt of gratitude to professors David A. Baerreis, Chester S. Chard, and Donald E. Thompson, of the University of Wisconsin, Department of Anthropology, who acted as my doctoral thesis reading committee. Their advice resulted in extensive modifications to the organization and content of the original manuscript which served as a dissertation in partial fulfilment of the requirement for the degree of Doctor of Philosophy. Sincere appreciation I also extend to the following National Museum scientists: Dr. D. E. McAllister, for identification of the fish remains; Mr. P. M. Youngman, for identification of the mammal remains; and Dr. A. H. Clarke, Jr., for identification of the shells. Finally, I take grateful

recognition of the contributions of researchers, past and present. Any synthesis is dependent, in large part, upon the previous published data, and the quality of the published record that was available to me was an invaluable prerequisite for the present synthesis.

February 1, 1964
Ottawa

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Résumé

Depuis que M. Richard S. MacNeish a publié, en 1952, sa théorie sur les origines *in situ* des Iroquois, on a recueilli une foule de nouveaux éléments d'information. Ces éléments ont été examinés en vue de faire remonter plus loin dans le passé les diverses séries évolutives de la tradition iroquoise de l'Ontario et d'appuyer sur de nouveaux faits la théorie de ses origines *in situ* en ce qu'elle a trait aux Hurons, aux Pétuns, aux Neutres et aux Ériés.

D'après les données historiques mêmes, les complexes de la tradition iroquoise de l'Ontario ont été assemblés en une tradition qui constitue l'une des trois traditions formant une co-tradition des Iroquois du Nord-Est. Pour situer dans le temps les diverses séries évolutives, l'auteur s'est fondé surtout sur les vestiges de poterie: tessons de bord et attributs particuliers. Dans la mesure du possible, cependant, d'autres éléments d'information tels que le genre d'établissement, les rites caractéristiques de sépulture et les particularités du travail de la pierre et des os ont été mis à profit. Les constatations faites dans les domaines de la linguistique, de l'ethnohistoire et de l'ethnologie ont particulièrement contribué à corroborer plusieurs des événements qui ressortent des données archéologiques.

La tradition iroquoise de l'Ontario comprend trois stades, d'après les grandes phases d'évolution qu'elle semble comporter. Le stade inférieur de la tradition iroquoise de l'Ontario, qui peut se situer de l'an 1000 à l'an 1300 après J.-C., représente le stade convergent de la tradition. Durant ce stade, deux complexes, soit la branche de Glen Meyer dans le sud-ouest de l'Ontario et la branche de Pickering dans le sud-est de l'Ontario, se sont développés de façon relativement isolée l'un par rapport à l'autre. Le stade de la tradition iroquoise du centre de l'Ontario a commencé lorsque la branche de Pickering a dominé la branche de Glen Meyer, et n'a cessé de se développer dans le sud-est de l'Ontario. Ces évenements ont abouti à un vaste complexe homogène, dit stade secondaire d'Uren, qui embrassait presque tout le sud de l'Ontario et une partie du sud-ouest de l'État de New-York. Le stade secondaire de Middleport a été l'aboutissement direct du stade secondaire d'Uren, enrichi d'un grand complexe de calumets. Comme ces deux stades secondaires (Uren et Middleport) ne semblent pas avoir duré plus de 100 ans, le stade de la tradition iroquoise du centre de l'Ontario est considéré comme le stade d'expansion de la tradition. Le stade récent de la tradition iroquoise de l'Ontario comprend le stade de divergence des quatre tribus historiques à partir d'un point commun du stade secondaire Middleport, qui aurait commencé vers l'an 1400 après J.-C. et aurait pris fin vers le milieu du XVII^{e} siècle, lorsque la Confédération des Cinq Nations a anéanti les Hurons, les Pétuns, les Neutres et les Ériés. Ce stade est considéré comme le stade de divergence de la tradition.

A partir des tout premiers événements que l'on peut situer dans le temps, on constate que les complexes de la tradition iroquoise de l'Ontario tendent

vers le mode de culture des Iroquois des temps historiques. Certaines caractéristiques de ce mode de culture se sont greffées à la tradition à différentes époques, bien que les facteurs essentiels remontent à l'an 1000 après J.-C. Les éléments d'information que l'on possède laissent supposer que le mode de culture des Iroquois de l'Ontario remonte bien loin, ce qui appuie la théorie de leurs origines *in situ* en tant que théorie fondamentale dans les études de la tradition iroquoise.

Summary

Since 1952, when Dr. Richard S. MacNeish published the *in situ* theory of Iroquois origins, much new data have been acquired. These data have been examined in an attempt to extend the time depth of the Ontario Iroquois sequences and to offer new evidence in support of the *in situ* theory as it pertains to the Huron, Petun, Neutral, and Erie.

By means of the direct historical approach the complexes pertinent to the Ontario Iroquois have been arranged in a tradition, a tradition which is but one of the three traditions involved in a Northeastern Iroquois Co-tradition. Ceramic evidence, consisting of both rim sherd types and single attributes, is most heavily relied upon to trace the various sequences through time. Other data, such as settlement pattern, burial characteristics, lithic and bone traits, however, are used whenever possible. The findings of linguistics, ethnohistory, and ethnology have been particularly valuable in supporting many of the events suggested by the archaeological data.

The Ontario Iroquois Tradition is divided into three stages on the basis of the major processes that are apparently involved in the tradition. The Early Ontario Iroquois stage, which can be traced from approximately A.D. 1000 to A.D. 1300, represents the converging stage of the tradition. During this stage, two complexes, the Glen Meyer branch in southwestern Ontario and the Pickering branch in southeastern Ontario, were developing in relative isolation to one another. The Middle Ontario Iroquois stage is initiated by the conquest of the Glen Meyer branch by the Pickering branch as well as by the uninterrupted development of the latter branch in southeastern Ontario. These events resulted in a widespread, homogeneous complex called the Uren substage, which covered most of Southern Ontario and a portion of southwestern New York. Developing directly out of the Uren substage, with the addition of an elaborate pipe complex, is the Middleport substage. As these two substages (Uren and Middleport) do not appear to have a combined time span in excess of 100 years, the Middle Ontario Iroquois stage is regarded as the horizon stage of the tradition. The Late Ontario Iroquois stage involves the divergence of the four historic tribes from a common Middleport substage base beginning by A.D. 1400 and terminating with the destruction of the Huron, Petun, Neutral, and Erie in the mid-17th century by the League of Five Nations. This stage is regarded as the divergence stage of the tradition.

From the earliest traceable beginnings the complexes of the Ontario Iroquois Tradition can be seen to trend towards the culture pattern of the historic Iroquois. Cultural traits characteristic of this pattern were grafted to the tradition at different times, although the basic elements are present by A.D. 1000. The available data suggest that the Iroquois culture pattern has a substantial time depth in Ontario, thus offering substantiation to the *in situ* theory as a central tenet in Iroquois studies.

CHAPTER ONE

Introduction

An Examination of Iroquois Research in General and the Ontario Contribution in Particular

The Iroquois of northeastern North America have been subjected to historical examination since the beginning of the 17th century and to anthropological examination since the end of the 19th century. In spite of this, the term 'Iroquois' is presently applied in a very ambiguous fashion. Indeed, there appears to have been far less confusion in the 17th century than there is today. There are two major factors which may be held responsible for this situation, and these are (1) the confederation of the Seneca, Cayuga, Onondaga, Oneida, and Mohawk to form the League of Five Nations, and (2) the mid-17th century destruction of the surrounding non-League Iroquois groups. Both of these factors have tended to make the terms 'Iroquois' and 'League of Five Nations' synonymous through the historical prominence of the League and the early obliteration of groups to which the term could also be applied. Also, there has been a tendency to regard the 'League' as a homogeneous cultural unit even though certain League members appear to be more closely affiliated to non-League Iroquois groups than they are to other League members.

"The Huron, Neutrals, and Tionontati were known to Algonkian peoples by the same name as the Iroquois, and for a time the French called the Huron tribes 'the good Iroquois' " (Kinietz, 1940:309). It is significant to note that the author of this quotation, though recognizing a common term for all Iroquois-speaking peoples of the area, still uses the term 'Iroquois' as a synonym for the League. The Iroquois-speaking people of the Northeast recognized a close kinship to one another that cut across political confederations.

"On both sides of the Niagara River were the villages of the Attiwandaronk or Neutral, considered an old and parent body of all the Huron-Iroquois. Within one of their villages near the Niagara lived Ji-gon-sa-seh, 'The Mother of Nations,' a woman who was a lineal descendant of the 'first woman of earth'." (Parker, 1922: 158). A similar acknowledgment of common descent was made by the Oneida to the defeated Hurons: "Thou knowest, thou Huron, that formerly we constituted but one cabin and one country. By some chance we separated. It is time to unite again" (Thwaites, R.G. (ed.,) *Jesuit Relations,* 1656: Vol. 42, p. 252).

Not only was a common ancestry of all Iroquois peoples accepted, but specific degrees of consanguinity were recognized between the various tribes. "The Seneca and Erie divisions seem to have been as closely allied in western New York as the Onondaga and Mohawk were in northern and eastern New York. The Mohawk (or Laurentian Iroquois) never agreed with the Senecan division and there indeed seems to have been a long period of separation that made these two dialects more unlike than all the others of the five" (Parker, 1922: 106). In order to avoid confusion, the word 'Iroquois,' as it is used in this paper, refers to all the Iroquois-speaking people involved in a general Iroquois cultural pattern in the Northeast. The apparently late political alliance of the Seneca, Cayuga, Onondaga, Oneida, and Mohawk is referred to as the 'League.' Indeed, the League has but little direct bearing upon the sequence of events to be examined. This is not to deny the historical significance of the League from A.D. 1650 to A.D. 1750, beginning with the destruction of the non-League Iroquois tribes and certain Algonkian-speaking groups. It is maintained, however, that the League's influence was late, sudden, and absolute, and therefore played a terminal role to the long-range developments of the various prehistoric traditions of the Iroquois culture pattern. The unifying conception of the League, its impact upon history, and the survival of its members into the ethnological present have all tended to emphasize a cultural homogeneity and tradition which are not demonstrable. As the fifty years of white contact prior to the League's period of conquest represent only one-thirteenth of the time span to be examined in detail, the component parts of the League will be referred to by their tribal names, and mention of the League proper will not be made outside the historic period. During this historic period the Iroquois may be separated into two major groups: League members and non-League members. The ten major Iroquois tribes of the contact period were the Huron, Petun, Neutral, Erie, Seneca, Cayuga, Onondaga, Oneida, Mohawk, and Susquehannock. Even though the cultural differences between these closely related tribes are differences of degree rather than of kind, a rough grouping of tribes into three major archaeological traditions is possible. These traditions have been established on the basis of archaeological remains (MacNeish, 1952: 87) and the application of the direct historical approach (Steward, 1942). Support for the archaeological formulations is to be found in both linguistics and ethnohistory. Ethnology is limited to the League members but by extrapolation is invaluable in interpreting the ethnohistoric data on the extinct Iroquois tribes and the contact period League members.

The following tribal clusters represent the historical product of the proposed traditions: Mohawk-Onondaga-Oneida; Seneca-Cayuga-Susquehannock; and Huron-Petun-Neutral-Erie. It is the latter group, which is called the Ontario Iroquois Tradition, that represents the major subject of inquiry of this paper. This tradition, however, cannot be effectively examined in isolation from the remaining two traditions. Archaeological investigations have suggested that three closely related cultural traditions, although still differentiated from one another in time and space, developed within a common pattern. These traditions interacted with one another in varying degrees of intensity, direction, and time, and terminated in the ten major Iroquois tribes of the historic period. Through geographical proximity and, apparently, political necessity, five of these tribes, coming from two of the traditions, formed the famous Iroquois League shortly before the contact period. Thus it happened that the League did not represent a coalescence of those tribes which possessed the closest cultural affiliations to one another. This split within the League has long been recognized by early workers, such as Parker, Wintemberg, Skinner, and Harrington, and in every instance the Mohawk-Oneida-

Onondaga have been differentiated from the Seneca. Indeed, the interrelationships between the three traditions and their component tribes have been complex and variable in both time and space. The pattern of relationships between the Iroquois tribes of the Northeast appears to be almost circular, and the resulting cultural interplay relegates the postulated three traditions to the role of taxonomic tools and not absolute pigeon-hole realities. For example, the Seneca-Cayuga-Susquehannock Tradition, because of its central location, reflects a wide variety of influences. The Seneca possess a closer relationship to neighbouring Ontario Iroquois Tradition members than do either the Cayuga or the Susquehannock. Both of the latter tribes, on the other hand, reflect closer relationships to the Mohawk-Onondaga-Oneida Tradition than does the Seneca tribe. Also, the Susquehannock possess abundant evidence of strong Upper Mississippi influence which is largely lacking from both the Seneca and Cayuga but is abundantly evident among the Erie. Very early cultural interaction between eastern complexes of the Ontario Iroquois Tradition and the Mohawk-Onondaga-Oneida Tradition is also evident, particularly with reference to the Onondaga and Oneida. The tremendous expansion of the Ontario Iroquois Tradition from A.D. 1300 to A.D. 1400 left its mark, with varying degrees of intensity, upon all the other Iroquois developments. This cultural interplay between the Iroquois of the Northeast will be dealt with in detail in the body of the text but is briefly presented here to emphasize the transitory degrees of relationship between the three traditions and their component parts. The concept of three interacting Iroquois traditions in the Northeast is simplistic, but simplicity is a prerequisite for comprehension, even at the sacrifice of a certain amount of reality. While variable blending in time and space between all three traditions exists, it is not of sufficient magnitude to dislocate the usefulness of the tradition concept as applied to the Iroquois. These three traditions still reflect the major trends through time and space of three closely related developments and, as such, may function as useful tools for the interpretation of Iroquois prehistory in the Northeast. The shaded areas between the traditions and their component parts, however, must not be ignored. Any impression of three cultural pillars evolving independently out of a common cultural base to result in ten historic, related tribes would be too great a sacrifice of prehistoric reality (reality as dictated by anthropological data and methods) to interpretational simplicity.

There are two hypotheses regarding the origin of the Iroquois, one based upon postulated migrations and the other upon an *in situ* development. The latter hypothesis is on the ascendency and has been generally accepted for a number of years by archaeologists. Though the various migration theories have generally fallen into disrepute, there are still a number of advocates, particularly among the ethnologists. It is understandable that the first attempts to solve the origins of the Iroquois would involve migrations rather than an *in situ* development. The demonstration of the localized evolution of a group of related peoples relies predominantly upon archaeological research, and such research takes time to establish an effective chronological framework.

The first migration theory may be attributed to Nicholas Perrot (Blair, 1911: 1, p. 42–43), who stated that "The country of the Iroquois was formerly the district of Montreal and Three Rivers . . . . " Cadwallader

Colden (1922) elaborated upon the theory by stating that the Iroquois were driven from the St. Lawrence Valley by neighbouring Algonkian groups. Lewis H. Morgan (1851), the forefather of ethonological research on the Iroquois, arrived at similar interpretations to those of Perrot and Colden.

The evidence upon which the northern origin theory is based comes from Cartier's voyage up the St. Lawrence River to Montreal in 1535–36 and Champlain's duplicating voyage of 1603. Cartier noted Iroquois settlements at both Quebec (Stadacona) and Montreal (Hochelaga). Champlain noted, however, the abandonment of these villages and the occupation of the area by Algonkian-speaking peoples. The Iroquois people first noted by Cartier have been called the Laurentian Iroquois (Fenton, 1940). The Laurentian Iroquois have been regarded as a separate Iroquois group and as a synonym for either the Mohawk, the Huron, the League, or the Onondaga. As an independent Iroquois group, they have been destroyed or absorbed by the Algonkians, or absorbed by other Iroquois groups after their retreat to the south. Actual Iroquois remains between Quebec and Montreal all relate to the prehistoric Onondaga-Oneida, and material has actually been recovered from a site which is a possible choice for the village of Hochelaga visited by Cartier. Present evidence suggests that the Onondaga and their close brethren, the Oneida, were prehistorically a much more numerous group than the historic record indicates. There is evidence to suggest that a late prehistoric, relatively homogeneous, archaeological complex attributable to the Onondaga and, in part, to the affiliated Oneida extended from extreme eastern Ontario down the St. Lawrence River nearly to Quebec City, over into Jefferson County, New York, and the Lake Champlain area of Vermont. It may be possible that this apparently large prehistoric population was markedly reduced by a combination of disease, resulting from their initial contact with the Europeans and conflict with their Algonkian neighbours. The enormous area occupied and the large number of substantial prehistoric village sites known do not coincide with the historic population figure for the Onondaga and Oneida. Be that as it may, available information indicates that the archaeological remains in the Laurentian Iroquois area are attributable to the Onondaga-Oneida and that this Iroquois group retreated to Jefferson County, New York, between 1536 and 1603. As such, the term 'Laurentian Iroquois,' which only serves the confusing function of redundancy or misrepresentation, should be discarded. Also, the north-to-south migration theory does not apply to the Iroquois as a whole but only to a partial shift of one, or possibly two, of the ten historic tribes.

The next migration theory that attempted to solve the origin of the Iroquois was proposed by Herbert M. Lloyd (1904). Lloyd suggested that the Iroquoian language family moved east from the headwaters of the Columbia River about A.D. 900. Agriculture was acquired in the Mississippi Valley. The Cherokee moved south from the upper Ohio Valley; the Iroquois moved north; the Huron, Mohawk, Onondaga, and Oneida moved eastward along the north shore of Lake Erie and Lake Ontario; the Seneca, Cayuga, and Erie worked eastward along the south shore of the same lakes. The Mohawk, who were a branch of the Huron, occupied the lower St. Lawrence Valley, but the Onondaga swung around the east end of Lake Ontario to be the first Iroquois into New York State. From here, the older migration theory regarding the expulsion of the Iroquois out of the St. Lawrence Valley is largely followed.

A. C. Parker (1916) follows Lloyd's theory but placed a greater emphasis upon the available archaeological data. The theory begins with the Iroquois located around the mouth of the Ohio River and in contact with Caddo, Muskogee, Sioux, and Algonkian peoples. For reasons unknown, the Iroquois-speakers advanced up the Ohio River in a northeasterly direction while another small group moved east to the Carolinas. The main migration was led by the Cherokee who first had to destroy and absorb the Mound Builders of Ohio. Meanwhile, the Iroquois, who were eventually to reside in the Northeast, came in conflict with the Cherokee while advancing up the Ohio. These Iroquois, with the assistance of the Delaware, forced the Cherokee to the south. Unable to occupy their newly conquered territory because of Cherokee raids, the Iroquois continued to move to the northeast. From here, Parker follows, with some minor variations, Lloyd's interpretation of the manner in which the Iroquois tribes of the Northeast came to occupy their historic territories. Combined hostilities of the northern Algonkians and the southern Iroquois (Cherokee) forced the formation of the League. The concluding sentence of Parker's paper states: "Our present knowledge, as we have argued, points to a southern origin, 'down the Ohio'." (1916: 507).

The southern origin of the Iroquois has been supported by both Boas (1910) and Speck (1920), the latter succinctly stating the tenuous evidence for the theory and the area in which its confirmation or refutation lies:

> "While it may be expected that analogies of some general character exist between the Cherokee and the northern Iroquoians, no progress has been made in the attempt to resolve the two cultural phases to a common foundation. The link of language is the binder by which relationship is traced. The roots of migration followed in the course of Iroquoian dispersion still defy explanation. Archeology holds the answer" (Speck, 1945: 22).

In the absence of adequate archaeological information, the early researchers were required to explain why the Iroquois-speakers of the Northeast were surrounded by Algonkian-speaking people and why the Iroquois possessed traits apparently characteristic of the Southeast but not of the Northeast. The answer was apparent: the agricultural Iroquois advanced out of the south and took by conquest their homeland in the north from the indigenous Algonkian-speaking people. This northward thrust, however, separated the Iroquois from their linguistic kinsmen, the Cherokee and Tuscarora, to the south. As Speck pointed out, the only appreciable evidence in support of the southern origin theory is the linguistic affiliation of the northern Iroquois and the southern Cherokee and Tuscarora. His statement that "archaeology holds the answer" has been substantiated by subsequent trends to explain the origin of the Iroquois.

James B. Griffin (1943*b*) pointed out that the major weakness of the earlier migration theories was their lack of correlation of the time of the postulated migration and the contemporaneous archaeological complexes. In an attempt to rectify this oversight he suggested that the Iroquois evolved out of the

Hopewell Aspect of the Middle Woodland period. The weaknesses in deriving the Iroquois directly out of the Hopewell Aspect have been pointed out by Ritchie (1961*a*: 29). Yet the initial premise was pertinent and marked a turning point in the investigation of Iroquois origins. There does exist a large and little known time gap between the latest Hopewell manifestation at the start of the Christian era and the earliest recognizable Iroquois complexes of approximately A.D. 1000. Hopewell-derived traits may have survived through this 1,000-year period of regionalized complexes, but, if so, their survival into Iroquois is in so modified a form that direct comparisons between the two complexes are not convincing. Other forces, which may well have had a greater impact upon the archaeological character of the Iroquois than any distant Hopewell connections, were also at work. The process of logic, however, applied by Griffin is commendable. Although the absence of archaeological remains from the Ohio Valley, which could be attributed to the Iroquois-Cherokee, negated the Lloyd-Parker theory of migration, the widespread distribution of Hopewell remains suggested a common base for the Iroquois and other tribal groups of different linguistic stocks. The statements of Speck and Griffin sounded the death knell of unsubstantiated speculation concerning the origin of the Iroquois. With the advance of archaeological knowledge in large areas of the eastern United States and adjacent Canada, the migration avenues of the earlier theorists were closed. This is not to condemn the early workers. "Fact-collecting of itself is insufficient scientific procedure; facts exist only as they are related to theories, and theories are not destroyed by facts—they are replaced by new theories which better explain the facts" (Steward, 1949: 25).

The new theory, made possible by the increased body of archaeological data, was the *in situ* theory of Iroquois origins. Both Griffin (1943*b*: 369) and Kraus (1944: 311, fn. 13) had suggested that the Iroquois developed out of a Woodland base, but the demonstration of such a development fell to Richard S. MacNeish. The two men who laid the groundwork for MacNeish's investigation were "Dr. Griffin who, through studies of the archaeology of the eastern United States, recognized that the conclusions of the earlier workers were probably incorrect and that a re-study of Iroquois archaeology using a direct historic approach plus Dr. Ritchie's contributions would give different conclusions" (MacNeish, 1952: preface); and Dr. Ritchie whose contributions represented the formulation of a pre-Iroquoian archaeological chronology for the state of New York (Ritchie, 1944). By establishing a rim sherd typology for the pre-Iroquoian ceramic complexes of the New York chronology (Ritchie and MacNeish, 1949), a comparative base for the *in situ* theory was created. As such, MacNeish, assisted by Ritchie, approached the problem of Iroquois origins from both ends of a postulated chronology. With the rim sherds of the pre-Iroquoian complexes organized into seriatable units, it now remained to establish the Iroquois rim typology and to see if the Iroquois seriation could be extended into the pre-Iroquoian rim sherd seriation. Starting with the historic Iroquois sites that were documented as to tribal affiliation, the direct historical approach suggested that the two rim seriations (Iroquois and pre-Iroquois) were chronologically related and that the historic Iroquois tribes represented the product of a lengthy sequence of cultural development in the Northeast. MacNeish envisioned a Point Peninsula horizon of the Middle Woodland period as representing the homogeneous cultural base from which the Iroquois evolved. Evidence has been presented by Ritchie and MacNeish (1949) to indicate that the Owasco Aspect developed directly out of Point Peninsula and that "it seems likely that, during the Owasco horizon, various groups which had developed from a more or less homogeneous Point Peninsula culture were separating into four areal subdivisions" (MacNeish, 1952: 81).

Within the Owasco culture stage, ceramic trends can be seen to relate to both Point Peninsula and Iroquois. In addition, the four spatial subdivisions of Owasco appear to relate to the different Iroquois traditions which terminated in the historic tribes. Two of the spatial variations of Owasco, one resulting in the Onondaga and Oneida and the other in the Mohawk, appear to be so closely related that they are regarded in this paper as a single unit, and hence the Onondaga, Oneida, and Mohawk are interpreted as the historic product of a single tradition. The tribal components making up the three major Iroquois traditions branched off from one another at varying intervals in the development of the respective traditions (MacNeish, 1952: 87, Figure 23).

A certain amount of support for MacNeish's *in situ* hypothesis is to be found in linguistics. Glottochronology estimates that the Iroquois and Cherokee separated some 3,500 to 3,800 years ago (Lounsbury, 1961:11). Archaeologically, this would mean that the Iroquois and Cherokee separated during late Archaic times and would explain why Cherokee archaeology bears little, if any, relationship to Iroquois archaeology (Coe, 1961). Tuscarora separation from the Iroquois (Oneida and Seneca) has been estimated between 1,900 and 2,400 years or, in archaeological terms, during the early portion of the Middle Woodland period. Separation time estimates between the Seneca, Cayuga, and Oneida range from 1,200 to 1,500 years, a period attributable to the late and terminal Middle Woodland. The glottochronology dates presently available for Iroquois dialects accommodate the archaeological sequence of events proposed by MacNeish. Linguistic evidence also supports the archaeological interpretation of the Onondaga-Oneida-Mohawk relationship by suggesting that these three closely related dialects represent a tripartite splitting of a "single population wave."[1] The separation of Iroquois into "outer languages (Cherokee, Laurentian, Huron-Wyandot, and Tuscarora)" as opposed to "inner or eastern languages (Five Nations languages, but especially the easternmost ones)" (Lounsbury, 1961: 17) does not agree with archaeological interpretations. As has been stated earlier, the Laurentian Iroquois appear to represent a largely prehistoric manifestation of the Onondaga; it has therefore been suggested that the term be discarded. Also, in the light of comparative archaeological evidence it is difficult for me to accept the lumping of the Huron with the Cherokee as opposed to the adjacent tribes of the League. Of course, Lounsbury is basing his conclusion upon "a series of isoglosses" which are indicative of "a dialect cleavage within the proto-Iroquoian speech community," whereas the writer is forming his interpretations on the basis of typological seriation and, if you will, ceramic isoglosses. While both the linguistic and the archaeological techniques are certainly subject to many variables, there is nothing in the record on historic Iroquois sites to suggest that language dialect and ceramic complex were not closely affiliated. It is largely for this reason that the writer finds it difficult to recognize an "equally deep split" between the Huron and the League and the Cherokee and the League. Despite the natural discipline bias, the association of archaeology and linguistics in the examination of the Iroquois problem has been a rewarding one. With continued research in both these fields an even greater degree of understanding of the problems is anticipated. Since both disciplines possess a certain amount of control over the time factor, it is, perhaps, natural that they combine forces in the solution of what is basically a chronological problem.

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[1] Dr. Floyd D. Lounsbury, "Comparative . . . Dialect Geography," [his]: paper presented at the Iroquois Symposium, 48th Annual Meeting of the American Anthropological Association, New York, 1949—Ritchie, 1952:27, fn. 49.

William A. Ritchie, in his excellent examination of Iroquois archaeology, has stated that while the *in situ* theory "will prove to be a sound basic assumption," it is, in its present state, "too simplistic and facile to account entirely for the evidence at hand" (Ritchie, 1961*a*: 30). Of these weaknesses the formulator of the hypothesis was well aware, stating that simplification was a natural expression of insufficient data and that only continued research could instill sophistication into his 'enfant terrible' (MacNeish, 1962: 109; 1952: 81).

Another problem raised by Ritchie which has direct implications regarding the future sophistication of the *in situ* hypothesis, as well as other areas of Iroquois research, is the "unfortunate lack of coordination among the various specialists working in the Iroquoian field, so that the data of ethnohistory, ethnology, linguistics, physical anthropology, and archeology remain, to a large degree, compartmentalized and mutually unrelated. Even with respect to archeology we still have Iroquois prehistory as seen from Toronto, Ottawa, Rochester, Albany, Harrisburg, or some other center of regional concentration, rather than an overall perspective, based upon the combined and united efforts of a group of scholars" (Ritchie, 1961*a*: 27).

The present study attempts to add to the sophistication of one portion of the *in situ* hypothesis and to make fullest use of the information arrived at by the other disciplines of anthropology. Since only one of the three Iroquois traditions is being examined, the contribution is restricted. It is hoped that the re-examination of the remaining traditions will be done by the qualified workers in the respective areas. As the modification of the sequence of events which led to the Huron, Petun, Neutral, and Erie stems directly from new data, there is no reason to assume that the data of the future will not, in turn, modify the sequence of events proposed in this paper. This is particularly true for the hazy period between A.D. 300 and A.D. 1000. In actual fact the chronology terminating in the Huron, Petun, Neutral, and Erie, which is referred to collectively as the Ontario Iroquois Tradition, can only be extended with any degree of certainty from the historic period to approximately A.D. 1000. As "an interpretation of Iroquois archaeology requires an understanding of the preceding ceramic horizons. . . ." (MacNeish, 1952: 81), a great deal more work is needed to span a time gap of nearly 700 years.

Plausible speculations may attempt to fill the gap, but there are presently insufficient data to convincingly demonstrate sequential trends. The assumption that these trends exist is based upon negative and very little positive evidence.

The information incorporated in the Ontario Iroquois Tradition represents the contributions of many people working in Southern Ontario for nearly 75 years. Any attempt to acknowledge the work of all the individuals involved would be impossible. Farmers and other citizens have rendered service to the understanding of the province's prehistory in many ways, and their contributions represent a vital part of the body of data upon which any synthesis is dependent. The initial archaeological investigations in Southern Ontario were directed toward the gathering of artifacts with little effective interpretation being possible in the absence of sufficient comparative data. Obvious archaeological units, such as the rich Iroquois village sites, were among the first to be examined. A. F. Hunter systematically recorded sites in Simcoe County, the homeland of the historic Huron (Hunter, 1899; 1900; 1902; 1903; 1907), and Colonel G. E. Laidlaw carried out investigations in Victoria County (Laidlaw, 1891; 1897; 1900; 1902; 1917). W. J. Wintemberg, however, was Ontario's first prominent archaeologist. His reports on such key stations as Uren (1928), Middleport (1948), Lawson (1939), Sidey-Mackay (1946), and Roebuck (1936), and his survey reports (1900; 1903; 1913) established a firm foundation for the study of the Ontario Iroquois. As will be demonstrated, each of the five major Iroquois sites reported upon deals with a different time period or area in Ontario Iroquois prehistory—there is no duplication. Wintemberg was also the first archaeologist to work in the province who attempted to segregate Iroquois from non-Iroquois material and to arrange the culture periods in their chronological order (Wintemberg, 1931). Other activities carried out by this amazingly productive man were the gathering, cataloguing, and analysing of substantial surface collections from Iroquois sites in Ontario and Quebec and the excavation of the Southwold site. The full contribution made by Wintemberg to the study of Iroquois prehistory in the province is difficult to calculate; the present stage of research owes much to his dedication.

Three institutions have been involved in most of the recent Iroquois research in Ontario: the National Museum of Canada, the University of Toronto (represented by the independent programs of the Department of Anthropology and the Royal Ontario Museum), and the University of Western Ontario.

Carrying on from Wintemberg in the National Museum of Canada was Richard S. MacNeish whose major contribution, in the form of the *in situ* theory (MacNeish, 1952), provided the pattern of analysis and interpretation for present researchers. With the addition of Thomas E. Lee to the Museum staff, an intensive survey of southwestern Ontario was realized (Lee, 1951; 1952). This survey uncovered the Glen Meyer focus, which played an important part in the Ontario Iroquois Tradition. Other publications by Lee (1956; 1958*a,b*; 1960) throw considerable light on matters pertaining to the Iroquois in Ontario. The writer's own work on the Iroquois has tended to concentrate on the earlier developmental stages (Wright, 1960; 1961).

The Department of Anthropology, University of Toronto, has a long and active history of Iroquois archaeology in Ontario. The late T. F. McIlwraith carried out the initial investigations of the historic Huron village of Cahiague (McIlwraith, 1946; 1947), and Philleo Nash excavated the prehistoric Pound site in southwestern Ontario. The appearance of J. N. Emerson in the Department resulted in a rapidly expanded programme of Iroquois archaeology. Both the student excavations, instituted by him, and the summer field seasons produced a wealth of data on the Iroquois of southeastern Ontario. The list of sites from which analysable samples have been obtained is impressive—Downsview, Black Creek, Hardrock, Benson, Aurora, MacKenzie, Seed, Parsons, Shebishikong, Bosomworth, Payne, Cahiague, Bennett, and others. In addition to his published reports (1956; 1959*a*,*b*; 1960; 1961), Emerson has, as a teacher in the classroom and in the field, introduced a substantial number of individuals to the field of Iroquois archaeology. Students who trained under him and who made contributions to Iroquois archaeology are R. E. Popham, W. D. Bell, R. C. Dailey, and W. A. Kenyon. As a former student and field assistant, I am aware that I could never fully express the debt I owe him as a teacher. Suffice it to say that any value the present paper may have is, in large part, due to the direction and assistance of Dr. Emerson.

In the Royal Ontario Museum, Mr. Kenneth E. Kidd carried out the detailed examination of Ste. Marie 1 (1949), one of the Jesuit missions among the Huron. His excavations at Ossossane (1953) represent a test case of archaeological confirmation of an ethnohistoric account. Of great importance is Kidd's present research into historic trade items which should allow a relatively accurate means of dating historic sites. Mr. Walter A. Kenyon has been carrying out an active research programme although, with one major exception, his studies have been directed toward non-Iroquoian sites. This one exception, however, is critical to the interpretation of the Ontario Iroquois Tradition and represents an important contribution.

Dr. Wilfred Jury of the University of Western Ontario, active in Iroquois research in Southern Ontario for many years, has excavated important sites such as Clearville, Ste. Marie 1, and Forget. His early established summer school for archaeology has provided numerous individuals with archaeological training. One of his students, Mr. E. R. Channen, now director of the Simcoe County Museum, has made valuable contributions to Iroquois prehistory in Simcoe County (Channen and Clarke, 1965).

Besides the preceding institutions, a number of other individuals have added to the understanding of Iroquois prehistory. The Ontario Archaeological Society, organized by Emerson, has carried out a considerable amount of work in the Toronto area as well as assisting excavations scattered across the province. Important stations such as Doncaster, Millroy, Robb, Draper, Fletcher, and Elliott have been excavated and, in part, reported upon. Dr. William A. Ritchie's excavation of the stratified East Sugar Island site (1949) has added information bearing on an early stage of Iroquois development in southeastern Ontario. Many non-professionals have made valuable contributions to Iroquois prehistory. The Rev. A. E. Jones's (1909) attempts to locate historic Huron mission sites demonstrated the vast potential of the ethno-historic data contained in the *Jesuit Relations*. Mr. Frank Ridley's publications (1952*a,b*; 1954; 1958*a*; 1961) have presented extremely important data for the interpretation of the Ontario Iroquois Tradition. Although interpretational controversies do exist (Ridley, 1958*b*), his researches at the Frank Bay, Boys, and Lalonde sites, in particular, have opened the way to an understanding of key portions of the tradition presently under examination. Mr. Fritz Knechtel has been a prime mover in initiating research in Bruce County. His large catalogued collection based upon surface materials and his close cooperation with professionals have allowed a relatively complete picture of Bruce County prehistory to be realized. A valuable contribution to the understanding of the Onondaga occupation of eastern Ontario which throws light on the interplay between the cultural developments of the Onondaga and the eastern portion of the Ontario Iroquois Tradition has been made by Major James F. Pendergast (1962; MS.). He has also published material on one of the easternmost components of the tradition presently under consideration (Pendergast, 1963).

In the foregoing brief examination of the history of Iroquois archaeological research in Ontario, a number of individual contributions almost certainly have been overlooked. The writer can only plead ignorance for such oversights. The number of people who have assisted in the unravelling of Iroquois prehistory in the province is large, and the manner in which these contributions were realized is variable and complex. An administrator who creates the finances and environment under which archaeological research can prosper, a farmer or contractor who interrupts his work to inform the authorities of an archaeological discovery—all these and more have made their contribution which, when taken in total, coalesce to assist an archaeological synthesis.

The initial synthesis of the Ontario Iroquois by MacNeish has, in large part, withstood the onslaught of new data. Starting with the Uren site as "the earliest Iroquois site" in Ontario, the lineal sequence was seen to lead up to the Middleport site. From the base formed by Middleport and related sites the Huron diverged in one direction and the Neutral-Erie in another. The Huron sequence led from Black Creek to Woodbridge to Seed to Sidey-Mackay to the late historic Huron sites of Warminster and Orr Lake. Paralleling this development the Neutral and Erie went from Pound to Southwold, where the Erie and Neutral diverged from one another, with the Neutral passing through Lawson to the historic Buffam St. site and the Erie passing through Goodyear to the historic Erie sites of Ripley and Erie, 28th St. Geographically, this sequence of events started in southwestern Ontario and spread over a large area during Middleport times. From a Middleport base the Huron advanced north from Toronto to eventually occupy their historic homeland of Huronia. The Neutral and Erie continued their development out of the same Middleport base in southwestern Ontario. Shortly after the occupation of the Southwold site, however, the Erie split from the Neutral and moved to the southwest along the south shore of Lake Erie while the Neutral remained in southwestern Ontario and in an adjacent portion of the Niagara Frontier of New York State.

With reference to the Neutral-Wenro sequence MacNeish (1952: 10) stated:

> "Generally speaking, these materials give us the best sequence of pottery we have from any Iroquois tribal group. Large, carefully excavated samples of sherds from sites that can be connected with the earliest site in this sequence are not available at present. However, Mr. Thomas E. Lee made surveys in Ontario for the National Museum of Canada in 1949 and 1950, concentrating on just this problem. The results of his surveys give every indication that this gap in our collections will soon be filled, as he found a series of sites that appears to represent a development from a new Ontario form of Owasco into the Uren type."

The "new Ontario form of Owasco," designated by Lee as the Glen Meyer focus, played a major role in the earlier developmental stage of the Ontario Iroquois, as will be demonstrated. Any attempt, however, to demonstrate a direct linkage between the earliest components of the Glen Meyer focus and the preceding Point Peninsula 2 focus of Middle Woodland has met with failure. This same situation applies to the research in New York State. It may be possible that, with the effective adaptation of agriculture to the area (northern varieties of corn), culture change from a nomadic to a sedentary or semi-sedentary way of life altered the archaeological complexes so rapidly and to such a degree that a non-existent archaeological hiatus between Middle Woodland (Point Peninsula 2, 3, and 4 foci) and Late Woodland (earliest recognizable Iroquois) appears to be present. Be that as it may, the evidence of cultural continuity between the Point Peninsula foci and the earliest Iroquois sites is very general and, as yet, not subject to seriatable demonstration. The likelihood of such a development, however, is strongly indicated by negative evidence, and it may be simply a matter of time or a modification in methods of analysis, or both, to effectively demonstrate sequential change through what is now a poorly-known time gap of some 700 years.

Dr. Emerson agrees, in general, with the Huron sequence of MacNeish's *in situ* theory, stating that "Ontario Iroquois culture began in central southwestern Ontario on the north shore of Lake Erie. From this nucleus a group split off, migrated eastward to the Toronto area, and settled in the Black Creek and Humber valleys. They built villages and, following the Iroquois pattern of abandonment and relocation, gradually moved northward in prehistoric times until they ultimately formed at least part of the historic Huron population of Simcoe County, Huronia proper" (Emerson, 1961: 1).

The northward migration of the Huron to Simcoe County has been challenged by Ridley (1958*b*). In his report on "The Huron and Lalonde occupations of Ontario" (1952*a*), Ridley defined the Lalonde focus and demonstrated its priority to Huron. In short, he recognized two cultural horizons in Simcoe County: an early, prehistoric Lalonde occupation and a historic or late prehistoric Huron occupation. His following report on the Fallis site (1952*b*), a station containing a Lalonde component under a Huron component, presented the role of the Lalonde focus in the development of the Iroquois in general. Lalonde was seen to develop out of a Uren-Webb

(Uren-Middleport) base. A portion of the Lalonde people invaded New York State via the eastern end of Lake Ontario and laid "the foundation of the historic Eastern Iroquois." While this penetration of northern New York was going on, the Lalonde people who had remained in Huronia were being "overwhelmed" by Mississippi influence. Before the historic period a group of the Mississippi acculturated Lalonde people pushed south across the Niagara River to form the historic Seneca, Erie, and Neutral. "Remaining in the old Lalonde homeland were the northerly Neutrals and the Hurons" (Ridley, 1952*b*: 14). From this last quotation I infer that the Huron are to be regarded as Lalonde people submerged under Mississippi influence.

The present study will attempt to resolve the controversy (Popham and Emerson, 1952; Ridley, 1958*b*, 1963; Emerson, 1959*a*, 1961) revolving around the occupation of Simcoe County by the Hurons (and the Petuns) by agreeing with Ridley that the Lalonde sites evolved out of a Middleport base in Simcoe County and by agreeing with Emerson that the Huron of the Toronto area migrated northward to eventually reside in the same county. In other words, I hope to demonstrate that the Huron and Petun of the historic period were the product of a bilineal development rather than one of two unilineal developments which are in conflict.

Ritchie has stated that "The current picture of cultural continuity in southern Ontario seems securely founded on a remarkable stratigraphic sequence from the Frank Bay site . . . " (1961*a*: 32).

While the sequence at the Frank Bay site is truly remarkable, the six components involved in the Ontario Iroquois Tradition at that site represent only a portion of the events to be traced in the Ontario Iroquois development.

In concluding this brief treatment of Iroquois research in general and the Ontario contribution in particular, it may be well to present the general framework of the Ontario Iroquois Tradition in order that the minutiae of evidence do not cloud the major processes involved in the tradition. Three proposed stages of development are involved in the continuum of the Ontario Iroquois Tradition. The first stage is called the Early Ontario Iroquois and represents the converging stage of the tradition. It is during this stage that a western branch called Glen Meyer and an eastern branch called Pickering were evolving in relative isolation to one another. The second stage, the Middle Ontario Iroquois, represents the fusion of the Glen Meyer and Pickering branches into a horizon which possesses early (Uren) and late (Middleport) substages within its relatively short time span. The final stage is called the Late Ontario Iroquois and represents the diverging stage of the tradition which historically resulted in the Huron, Petun, Neutral, and Erie tribal groups. In terms of culture change, the 650 years through which the Ontario Iroquois Tradition can be traced involve a convergence, a fusion, and a divergence, terminating in four of the historic Iroquois tribes.

CHAPTER TWO

Methods of Interpretation and Analysis

An Examination of the Assumptions and Characteristics Inherent in the Processes and Analytical Techniques Applied to the Ontario Iroquois Tradition

Since the title of the monograph is "The Ontario Iroquois Tradition" it is mandatory that an examination of the tradition concept, as applied by the writer, be made.

> "A familiar, not to say indispensable, word in any historical context, 'tradition' has of late acquired a special meaning in archaeology, or rather a number of meanings, for it is still in an early stage of formulation and does not mean the same thing to all who use it" (Willey and Phillips, 1958: 34).

As used in the present paper, 'tradition' refers to all the archaeological complexes which can be demonstrated to be directly involved in the formation of a group of closely related historic tribes. In this sense, the Ontario Iroquois Tradition incorporates the prehistoric convergence, fusion, and divergence of complexes traceable, by the direct historical approach, from the historic Huron, Petun, Neutral, and Erie. Also, the Ontario Iroquois Tradition represents but one of the three traditions involved in a Northeastern Iroquois co-tradition. Indeed, the Iroquois appear to represent one of the few groups in North America to which the concept of the area co-tradition, as defined by Bennett (1948: 1), can be effectively applied.

In ordering the Ontario Iroquois materials into a tradition, the earlier Midwestern Taxonomic method of ordering archaeological data (McKern, 1939) becomes non-functional. The substitution of the tradition concept for the earlier taxonomic system does not refute the usefulness of the latter but, rather, represents a replacement which is the product of increased archaeological data and thus more sophisticated methods of analysis. The Midwestern Taxonomic system, with its acquired time dimension from the direct historical approach, is a useful system for ordering archaeological data into a meaningful framework when the data are sparse or scattered. With increased archaeological knowledge of an area, however, the continued use of the 'pigeon-hole' categories of the Midwestern Taxonomic system tends to disrupt archaeological continua. Confusion may also result from the myriad of interrelated 'foci' and 'aspects,' especially when no two workers apply the same interpretative meaning to these terms. I feel that there exists sufficient evidence for the archaeological period under consideration to use the concept of 'tradition' and its corollary, 'horizon,' and to abandon the concepts of 'aspect' and 'focus.' A horizon is regarded as a corollary of the tradition since it represents the sudden, short-lived, geographic expansion of a part of the tradition. The application of tradition and horizon in conjunction with foci or phases has received considerable attention in relevant literature (Rouse, 1955; Seminars in Archaeology, 1955; Willey and Phillips, 1958). In this report, however, the biological term 'branch' (Mayr, 1942; Rensch, 1960; and Simpson, 1961) has been substituted for the synonymous terms 'focus' and 'phase.' This is done in order to emphasize the evolutionary or unbroken cultural development seen within the Ontario Iroquois complexes. It was also felt that greater accuracy and simplicity of interpretation are attained by referring to the early, middle, and late chronological units of a branch than by discussing three foci or phases ordered in a unilineal fashion. The Gladwins' use of the term 'branch' "which correspond[s] in importance to the culture-areas named by Kidder; Kayenta, Chaco, etc." (Gladwin and Gladwin, 1934: 10), would appear to be more inclusive than the writer's application. In addition, the biological connotations of the word more closely convey the developmental nature of the taxonomic unit under consideration. Divisions within a branch simply refer to geographic areas of development within the same complex which possess relatively minor differences. Such a system gives free play to the most valuable attributes of the tradition—flexibility and continuity.

By dividing the Ontario Iroquois Tradition into three stages, each of which contains closely related but separable branches, both flexibility and continuity are maintained. The continuity, however, is not solely traced by rim sherd type seriations. Where possible, other ceramic, lithic, and bone traits, as well as features of settlement pattern and burial, are taken into consideration. Some of these artifact and 'feature traits' will be seen to be equally indicative of cultural trends as are the rim sherd typologies. Rim sherd types, however, will still represent the basic evidence for culture change within the Ontario Iroquois Tradition. This bias is natural, since pottery represents the dominant trait on all Iroquois sites (usually over 90 per cent of the total artifact count), as well as the trait possessing the most qualifiable and quantifiable attributes. The other elements of the culture are generally used as support for the inferences derived from the rim sherds, but occasionally they are more indicative of the degree of relationship than is expressed by the rim sherd seriation.

Besides the working definition of tradition given earlier in this chapter, the writer is in full agreement with Goggin's definition.

> "A cultural tradition is a distinctive way of life, reflected in various aspects of the culture; perhaps extending through some period of time and exhibiting normal internal cultural changes, but nevertheless throughout this period showing a basic consistent unity" (Goggin, 1949: 17).

Excavation of documented historic Iroquois sites has revealed that, with the exception of the Huron-Petun and the Onondaga-Oneida, the tribal components of the Iroquois possessed distinctive and separable ceramic complexes. The two exceptions appear to represent tribes so closely related that an effective separation by archaeological means is wanting for lack of cultural differentiation. MacNeish suggests that "the Oneida and Onondaga separated at a very late date, and from the present meagre data even at historic times the two were almost identical" (MacNeish, 1952: 66).

The close Huron and Petun relationship will be demonstrated in the text. The important point is that, with two understandable exceptions, the ceramic complexes and dialects of the historic Iroquois tribes correspond with one another. As such, it is inferred that cultural variation among the Iroquois is reflected by ceramic variation to a considerable degree. The hazards of forming a one-to-one relationship between language and culture are realized, but the available evidence suggests that such a relationship did exist among the Iroquois tribes of the Northeast with the two exceptions already mentioned. Perhaps the tenacity with which the Iroquois retain their traditional ways of life, even under strong acculturative pressure (Shimony, 1961), holds the explanation for the apparent parallels between language dialect and culture (as reflected by archaeological remains) within the historic Iroquois tribes. It is further inferred that the association of tribal units and ceramic complexes can be extended throughout the depth of the Ontario Iroquois Tradition, even when some of the archaeological units are not directly assignable to any one of the historic tribes. As such, the Ontario Iroquois Tradition is regarded as the cultural history of the Huron, Petun, Neutral, and Erie and not simply as the fluctuations of rim sherd seriations lacking in any social meaning. In this light, the Early Ontario Iroquois stage is regarded as the period of independent development of two separate tribes, neither of which can be attributed directly to the four historic tribes. The Middle Ontario Iroquois stage, or the horizon period of the tradition, is instituted by the conquest of one of the preceding tribes by the other. This conquest created a broad, homogeneous culture base formed by the fusion of the two earlier tribes. From this common base the four historic tribes evolved during the Lake Ontario Iroquois stage.

While the preceding account of the culture history of the Ontario Iroquois is based upon a substantial amount of data, it is inferential. Indeed, inference is a critical element in archaeological interpretation since too little leads to a lack of interpretation and too much leads to a conflict of interpretation. The writer only hopes that in his application of inference he has exploited the potential of his data while not lapsing into unfounded speculations. Each individual researcher and research situation will dictate the quality and intensity of inferential interpretations. It is felt that the Iroquois situation, with its superabundance of archaeological data, ethnological research, and ethnohistoric documents, represents a prime medium for the application of inferential logic. For example, the historic records, supported indirectly by ethnology and archaeology, suggest that each of the Ontario Iroquois tribes were probably divided into a number of separate 'nations' or villages united by kinship bonds and organized into a loose confederation of semi-autonomous villages. The village, or a restricted grouping of villages, therefore, represented the largest effective social unit of the Ontario Iroquois. And the confederacies, called tribes, were a loose political unit established for mutual defence. The ineffectiveness with which the Ontario Iroquois defended themselves against the concerted attacks of the League (Hunt, 1940) probably reflects this 'village' or 'nation' autonomy, which appears to have had deep roots in the Ontario Iroquois Tradition. Throughout the following chapters a great number of inferences, drawn from a wide variety of sources, will be used in an attempt to throw light on the archaeological problems at hand.

The attempt will be made, however, to support any one inference with two or more sources of data.

The analytical techniques applied to the Ontario Iroquois Tradition are 'types' and 'modes' and such comparative devices as the 'coefficient of similarity.' Since rim sherds represent the major medium through which prehistoric events have been traced in Iroquois studies, their treatment will be examined initially.

MacNeish (1952) set the pattern for the analysis of rim sherds in his study of Iroquois pottery types. He regards a type "as a class or group of objects having interrelated similar features or modes that have temporal or spatial (tribal) significance" (1952: 2). This definition of type is the same as that used by Ritchie and MacNeish (1949) in their paper on pre-Iroquoian pottery types and corresponds closely to the definition of an archaeological type proposed by Krieger (1944). It is also the concept of type to be used in this paper.

Of the 57 pottery types established by MacNeish for the Iroquois, 25 are attributable to the Ontario Iroquois Tradition; namely the Neutral-Wenro, Erie, and Huron sequences. The attributes of motif, the technique by which the motif was realized, and the rim shape were used to establish the types. The following related assumptions are made regarding pottery types: the combined attributes of the type represent stylistic concepts in the mind of the potter and, thus, reflect time and space trends; the attributes of rim sherds can be systematically combined into a type; the degree of relationship of rim sherd typology seriations reflect the closeness of actual cultural relationship; degrees of similarity allow a chronological ordering of sites; and each pottery type, over time, shows the distribution of a normal curve. By applying the direct historical approach and the preceding assumptions to pottery types, MacNeish succeeded in establishing an effective chronology for the Iroquois. Despite criticisms of the system (Carpenter, 1953; Pratt, 1960) and the justified statement that it is "too simplistic and facile" (Ritchie, 1961*a:* 30), there is little doubt that the major developments within Iroquois prehistory as envisioned by MacNeish will stand the test of time. What will change are the earlier stages of the development which MacNeish stated were based upon inadequate data and, thus, were highly speculative. The major area of research on the Iroquois chronology will be to effectively bridge the gap between the late Middle Woodland and early Late Woodland periods. This is not to say that later sequences of the Iroquois development will not be subject to change but, rather, that the earlier portion of the *in situ* theory will be markedly modified, whereas the later portion will be modified by continual refinements to the present scheme.

Despite the fact that the present Iroquois chronology was established on the basis of rim sherd types, it is proposed, with regard to pottery, that analysis based upon types be partially replaced by analysis based upon modes or single attributes. The advantages of mode analysis over type analysis are conciseness and greater control over the time and space factors; on the other hand, type analysis offers simplicity and more rigid, if artificial, control over the same factors (time and space). As such, both forms of analysis make a contribution at different interpretational levels. However, with reference to Iroquois ceramics, it is felt that mode analysis possesses a greater potential of information and can add a more precise chronology already outlined by rim sherd types. In this light, the more specific information derived from mode analysis represents a natural outgrowth from the general information obtained by type analysis or, in other words, the natural trend from the general to the specific with the increase of data. It is for these reasons that in the present study both types and modes are used in the ceramic analysis, thus following a pattern of analysis suggested by Rouse (1939). Any change from an emphasis on types to an emphasis on modes, however, must be gradual in order that the comparative data from earlier works may be used. Indeed, it is very doubtful that mode analysis can ever completely replace type analysis. It is maintained, however, that by applying both forms of analysis to Iroquois ceramics, with an emphasis on the former, a greater control over chronological processes can be achieved. For example, the Ontario Oblique pottery type as defined by MacNeish (1952: 18) is characterized by "Bands of oblique lines either parallel or opposed on the neck and rim on globular-bodied vessels . . ." and "Rims are usually outflaring and are usually without a collar." Temporally, this type is dominant during Uren times and survives to Middleport times. MacNeish's temporal range corresponds with what is called the Middle Ontario Iroquois stage in this paper. In the Glen Meyer branch of the Early Ontario Iroquois stage, however, a number of identical rims and a number of rims differing in one attribute are found. The problem was whether to call the identical rims Ontario Oblique and give those differing slightly a new type name, or to expand upon the number of attributes allowable within the Ontario Oblique pottery type. For the sake of continuity, the latter solution was taken. Another problem was encountered. Twenty-one per cent of the Ontario Oblique rims from the Glen Meyer branch possessed exterior bosses. According to MacNeish's rim typology these specimens would be assignable to the Uren Noded type (MacNeish, 1952: 18). However, the bossing was the only attribute by which these specimens could be separated from the Ontario Oblique type, and since the writer cannot accept a single attribute as being the diagnostic of a type, the bossing was regarded as an early attribute of the Ontario Oblique pottery type. In addition, with reference to this type in the Glen Meyer branch, 65 per cent have collars, 35 per cent have opposed oblique lines, and 65 per cent have parallel oblique lines on the exterior; 48 per cent are linear stamped, 22 per cent are turtle-shell impressed, 16 per cent are irregular impressed, 9 per cent are fingernail impressed, and 5 per cent are incised. Yet, during the Middle Ontario Iroquois stage, in which MacNeish defined this type, the bossing, collared rims, opposed oblique motif, turtle-shell, irregular, and fingernail techniques are markedly reduced in popularity and, in some instances, virtually absent. In short, a number of the modes making up this pottery type show great variation in time significance. Their full potential, however, as temporal indicators has been restricted within the general framework of the type concept. At the same time, the Ontario Oblique pottery type is a good indicator of a certain period and area of the Ontario Iroquois cultural development.

The problem is not which is best—the pottery type with its general time and space significance or the modes making up the pottery type with their specific and variable time and space significance. Both are merely methods which possess inherent strengths and weaknesses. In the earlier stages of Iroquois research, when the data were limited and scattered, the pottery type was extremely useful in establishing the general chronology. As the data become more complete, however, the pottery type concept becomes cumbersome. It is already apparent that many of the present researchers in Iroquois archaeology are dissatisfied with the established pottery types. They want to set up their own types in order to make the types fit the regional situation. Such a trend can only result in chaos where a single type means a number of things to a number of researchers or where several type names are used for identical rim sherds. The only solution to the problem, in the writer's estimation, is to gradually reduce type analysis in favour of mode analysis. Dr. Marian White (1961*a*) has already made a move in this direction. The advantages of mode analysis applied to pottery are obvious—there is no clash of attributes as found in the type, and comparative data are stable and not subject to the revisions inherent in the type concept. As the Midwestern Taxonomic system was replaced by the tradition concept in this paper, it is probable that type analysis of Iroquois ceramics will be, in large part, replaced by mode analysis and for the same reason. Pottery types, like the taxonomic units of the Midwestern system, are pigeon-hole units and interfere with attribute continua when sufficient data exist to make such continua meaningful. The preceding is not intended to negate the value of the type concept as will be clearly seen in the following text. It is intended, however, to emphasize mode analysis as the basic method in ceramic examination. The type concept will still be useful in analysing artifacts which possess few, if any, overlapping attributes indicative of different time or space meaning. Also, pottery types may be established from the completed mode analysis to form an easily communicable concept. In this respect the writer feels it is better to split the data into their smallest units (modes) and then, depending on the time and space significance of mode clusters (type), combine modes to form types for the sake of clearer communication. The preceding discussion of mode and type analysis is applied to the Iroquois only, and no suggestion of application in other areas is intended. Each archaeological area presents its own problems, and methods of solution will vary with the nature of the problems to be resolved. The preceding scheme seems, to the writer, to be most effective in treating the problems encountered in Ontario Iroquois archaeology.

In the following pages, thirty-eight sites will be compared to one another with reference to pottery types as well as other features. In order to make the comparisons of rim sherd type frequencies from the various sites more meaningful, the coefficient of similarity (Brainerd, 1951) has been used. To arrive at the coefficient, the percentage frequencies of the various pottery types from two sites are first aligned to one another. The percentage frequencies for a single pottery type at each site are then subtracted. This is done for all the types present at the two sites being compared. The column of differences is added, and the total is subtracted from 200 (the total percentage for the two sites). The resulting figure is the coefficient of similarity. Thus, identical sites would, theoretically, have a coefficient of 200, and completely dissimilar sites would have a coefficient of 0. While such a coefficient is undoubtedly a rough expression of the degree of similarity between two sites, it does have the advantage of reducing a substantial body of comparative data to a single number. Also, the accuracy of any one coefficient between two sites can be tested by comparing the non-pottery type data of the respective sites. Generally, the two comparative methods correlate rather neatly. This is, perhaps, not too surprising when it is remembered that the coefficient of similarity is not an elaborate mathematical formula expressing degrees of relationship but, rather, a simple mathematical device used to reduce a large body of data to a single figure expressing a relationship. As such, its value lies solely in condensing a body of data to a simple and more general comparative unit. No attempt will be made to attach a broader meaning to the coefficients. Although the writer does not feel qualified to discuss the mathematical theory underlying the coefficient of similarity, he does feel that the coefficient can be used as an effective comparative device in the examination of the large body of data involved in the analysis of Iroquois ceramics.

In the following chapters a large number of Iroquois sites in Ontario and southwestern New York State will be examined. Many archaeologists are responsible for the available data on these sites, and thus the amount and character of the information are variable. On some sites a complete analysis is available whereas on others only the rim sherds have been analysed. One researcher established his own pottery types, and, as a result, one cannot effectively compare his seriation to the rim sherd seriations which follow MacNeish. A great deal of the data is in the form of preliminary reports; hence there is a paucity of descriptive information. There is also a vast quantity of analysed but unpublished material, as well as unanalysed data, to which the writer has fortunately had access. All these data have been used to reconstruct the culture history of the Ontario Iroquois. Since the information is variable, however, the interpretations derived from the data are correspondingly variable. Therefore the treatment of the different stages of the Ontario Iroquois Tradition may appear to be erratic. This unevenness of interpretation stems directly from the data. It is hoped that by attempting to apply all the existing information to the interpretation of the Ontario Iroquois Tradition a more comprehensive picture has been achieved.

The sequence of events involved in the Ontario Iroquois Tradition is largely confined to Southern Ontario and a portion of southwestern New York. This, however, does not mean that the cultural developments of related Iroquois groups in adjacent regions of New York, Quebec, Pennsylvania, and Vermont can be ignored. As the body of data relating to the Iroquois of the Northeast increases, numerous interrelationships, which vary in time, space, and intensity, are seen to exist between the component parts. Thus the Ontario Iroquois Tradition must be examined not only as a separate entity, but also as one of the interacting units of a Northeastern Iroquois co-tradition.

The association of white missionaries and explorers with nearly all the tribal groups making up the Iroquois, and the present existence of the Five Nations Iroquois have resulted in a wealth of information which is valuable in filling out the lean framework of the archaeological chronology. Through the efforts of the Récollet and Jesuit fathers and Samuel de Champlain, a great deal of information on the Huron, prior to their dispersal, is available. Such early ethnohistoric observations act as important keys when it becomes necessary to extrapolate from recent ethnological observations on the Five

Nations Iroquois to those groups which were destroyed by the League in the mid 17th century. The findings of ethnohistory, physical anthropology, linguistics, ethnology, and archaeology, all support the close cultural relationship that existed and exists between the various tribal units of the Iroquois, thereby reducing the hazards of extrapolation from the ethnological present to the prehistoric or early historic past.

At the historic period the Iroquois may be divided into two general categories: League members and non-League members. The famous League of Five Nations, consisting of the Seneca, Cayuga, Onondaga, Oneida, and Mohawk, occupied a substantial area of northern New York State. Their non- or anti-League kinsmen, the Huron, Petun, Neutral, Erie, and Susquehannock, resided in portions of Southern Ontario, southwestern New York, and the Susquehanna Valley of Pennsylvania. For nearly fifty recorded years the Huron and their Algonkian-speaking allies were continually involved in hostilities with the League. The struggle between the Susquehannock and the League also appears to have been a lengthy one. While the Petun, Neutral, and Erie were not involved in the prolonged hostilities with the League, they were taking part in the endemic warfare pattern of the Northeast with neighbouring Algonkian-speakers. Into this pattern of native warfare there came the French, the Dutch, and, later, the English. The repercussions stemming from the fur trade and European intrigue led to the loss of independence and absorption, or the effective dispersal, of the surrounding Iroquois and Algonkian-speakers by the League during the mid-17th century. In the five years between A.D. 1649 and A.D. 1654 the Huron, Petun, Neutral, and Erie, were destroyed as independent tribes. With their destruction the sequence of events outlined in this paper was terminated.

CHAPTER THREE

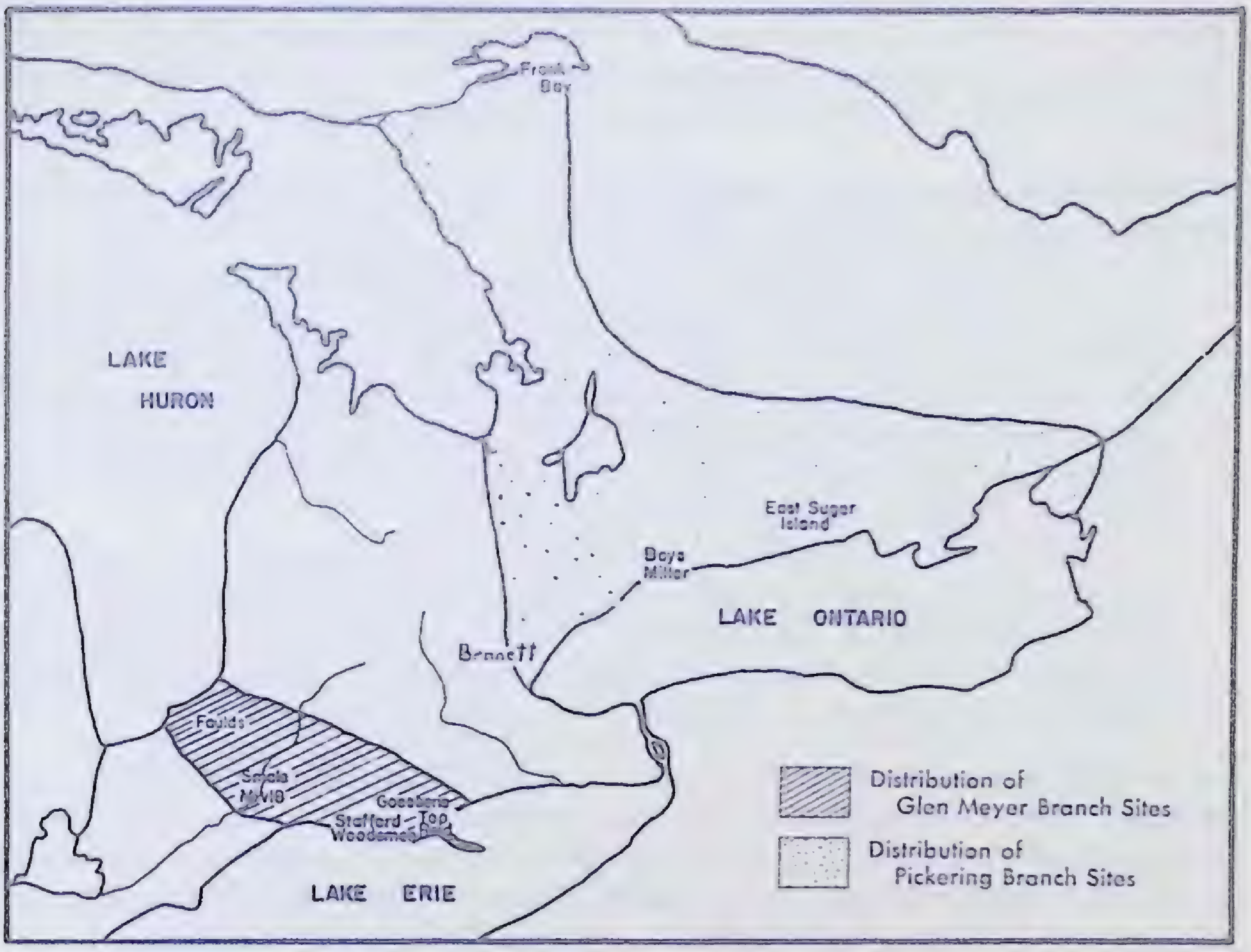
The Early Ontario Iroquois Stage

An Examination of the Cultural Development of the Glen Meyer and Pickering Branches in Southern Ontario from A.D. 1000 to A.D. 1300

During the Early Ontario Iroquois stage two separate complexes, which could correspond to tribes, were developing in relative isolation to one another. By means of radiocarbon dating and seriational estimates, it is possible to calculate that these developments took place between A.D. 1000 and A.D. 1300. In a restricted area of southwestern Ontario the Glen Meyer branch was evolving. Parallel with this development was the more widely distributed Pickering branch in southeastern Ontario. The source of these two branches is still highly speculative and will be examined in the concluding chapter. It can, however, be stated with a fair degree of accuracy that by A.D. 1000 both branches were firmly established in Southern Ontario. By A.D. 1300 peoples of the Pickering branch had conquered and absorbed the Glen Meyer branch, thus terminating the Early Ontario Iroquois stage and initiating the Middle Ontario Iroquois stage.

From the earliest beginnings, both branches practised corn agriculture and relied heavily upon hunting and fishing, particularly the latter. Within the Pickering branch numerous small camp-sites, usually located at fishing areas, as well as large villages are to be found. The Glen Meyer branch, on the other hand, appears to be characterized by large villages with slight evidence of small camp-sites. Perhaps this situation reflects a greater reliance upon agriculture by the Glen Meyer people. Within both branches the larger villages are inland on naturally defensible sites and appear to have been palisaded. This suggests that the endemic pattern of warfare in the Northeast was already current. In the Pickering branch an evolution from large ovate house structures to the rectangular longhouse has been traced, suggesting that the matrilineal household of the historic Iroquois was already firmly established. Similar information from the Glen Meyer branch is lacking. Burial practices in the Pickering branch consist of bundle and flexed burials in and around the village. The single burial known from the Glen Meyer branch is a bundle burial. This prevalence of the bundle burial may indicate the beginnings of the large ossuary interments characteristic of the historic Ontario Iroquois. Pickering branch skeletal remains that have been examined fall well within the range of the Iroquois physical type (Dr. J. E. Anderson, pers. comm.). Finally, the general nature of the artifact complexes of the Glen Meyer and Pickering branches is both quantitatively and qualitatively similar to that of the historic Ontario Iroquois.

The preceding paragraph outlines the close correspondences between the Glen Meyer and Pickering branches and between the Early Ontario Iroquois stage and the historic Ontario Iroquois. It appears that the major elements of the Ontario Iroquois cultural pattern were already established by A.D. 1000. Subsequent developments, therefore, revolve around a cultural core consisting of large matrilineal households clustered in palisaded villages, corn agriculture, and a common material culture.



MAP 1 The Early Ontario Iroquois stage

In the following examination of the Glen Meyer and Pickering branches, it will be noted that the type of information on the Glen Meyer branch is largely drawn from the analysis of the materials residing in the National Museum of Canada. Information on the Pickering branch, however, is taken from published reports, very little comparative material being present in the Museum collections except for one late site. Since the available data determine the nature of the interpretations, certain strengths and weaknesses can be seen in the examination of both the Glen Meyer branch and the Pickering branch. The weakness of the Glen Meyer branch analysis is the paucity of settlement pattern data, whereas its strength lies in the systematic analysis of the surviving material culture. In the case of the Pickering branch the situation is reversed. There is a substantial amount of settlement pattern data but little in the way of systematized analysis of the artifacts. Hence, the examination of these two branches is uneven, and a great deal more work is needed to fill the gaps. Despite the limitations of the data, a consistent picture of the independent development of the two branches, in their respective areas of Southern Ontario, is emerging.

THE GLEN MEYER BRANCH

During the field seasons of 1949 and 1950, Mr. T. E. Lee carried out archaeological investigations in southwestern Ontario for the National Museum of Canada. In subsequent preliminary reports (Lee, 1951; 1952) the Glen Meyer focus was established as a late Ontario manifestation of the Owasco aspect. Lee claims that the pattern of cultural development within the Glen Meyer focus was trending toward Uren (Lee, 1951: 47) and that "From Krieger to historic Neutral the sequence is virtually complete" (Lee, 1952: 71).

The most comprehensive statement on the Glen Meyer focus is made by Lee in an appendix to Ridley (1958*a*: 21):

> "The fifteen or more sites in the focus were found on sandy soil, lying within a broad oval which touches upon Port Rowan on Lake Erie and Ipperwash on Lake Huron (Map, Fig. 3, Lee, 1952). Sites may be small but usually cover from five to ten acres. They tend to occur between small ravines but may be found on hilltops where water supplies are not readily apparent. They may have been palisaded; a portion of what was probably a palisade was uncovered at Goessens.
>
> House forms and size are not known, though a corner of one was examined at Goessens. Burials are probably of several types. One adult male bundle burial was excavated at the Stafford site near Aylmer, Ontario. It contained no grave goods other than a slab of fossiliferous limestone and the lower mandible of an elderly person."

It is further mentioned that incising as pottery decoration increases at the expense of the cord-wrapped paddle edge technique, that the Goessens site is early in the sequence, that Hopewellian influence can be seen in the ceramic motifs, and that nearly all the material from the Boys and Barrie sites is "identical with that of the Glen Meyer Focus" (Ridley, 1958*a*: 22).

Beyond these general statements no specific description or analysis of the Glen Meyer material has been made with the exception of my cursory examination of the ceramics (1961: 10). Nevertheless, because of Lee's statement that the materials from the Boys and Barrie sites are identical with those from the Glen Meyer focus, the term has, in my estimation, been widely misapplied (Kenyon, 1959*a*, 1960; Johnston, 1960; Wright, 1960; Ritchie, 1961*a*). It is, therefore, critical that an analysis of the Glen Meyer complex be made available before its interpretational role in Ontario Iroquois prehistory is enlarged upon further.

Nine sites are used to define the Glen Meyer branch. All the material, with one exception, was collected by Lee. The exception consisted of a large collection from the Goessens site which was given to Mr. Fritz Knechtel of Hanover, Ontario. Mr. Knechtel subsequently turned the collection over to the National Museum. The quantity of material from each site is variable and may be reflected by the number of analysable rim sherds which occurred as follows: Goessens (533); Stafford (207); Woodsmen (58); Smale (56); Downpour (32); Reid (13); Too (13); Faulds (9); and Mivl8 (8). With the exception of the Downpour site, all these sites belong to the Glen Meyer branch of the Early Ontario Iroquois stage. The Downpour site falls into the

Middle Ontario Iroquois stage; it is included here to more clearly demonstrate the cultural continuity between the two stages.

I have not personally examined any of the nine sites under consideration, nor have I had access to informative field notes. The following information on the Glen Meyer complex is, therefore, derived largely from an examination of the artifacts in the National Museum.

Ceramic Analysis

RIM SHERDS

In the analysis of the rim sherds, both separate modes and types are considered. The modes used for establishing types are, for the most part, decorative motifs and techniques. It was found that a number of rim sherds in the Glen Meyer complex could only be differentiated from the already established pottery types in the Neutral-Wenro sequence (MacNeish, 1952) by the presence of bosses. This single attribute is not regarded as sufficient reason to establish a new pottery type and thereby disrupt a continuum. Bossing is regarded, rather, as an early feature of the pottery type which dies out before the remaining complex of attributes which make up the type. One of the dominant decorative techniques in the complex presented certain problems. This was the technique of linear stamping which is made by impressing the length of a sharp-edged tool into the clay, leaving an impression which is difficult to distinguish from incising. As has been proved to me by experiment, an identical result can be frequently achieved by either linear stamping or incising. Perhaps this explains why MacNeish in his description of the Ontario Oblique pottery type (*Ibid.;* 18), where both impressing and incising are represented, did not stipulate the technique but, rather, the motif (contrary to Ridley, 1958*a*: 12). In the examination of MacNeish's types an attempt is made to quantify the impressed and incised techniques. A range of error exists. But the effort is deemed necessary inasmuch as the impressing technique versus the incising technique would appear to be of critical importance in the transition from the dominant impressing technique of the Glen Meyer ceramic complex to the dominant incising technique of Middle and Late Ontario Iroquois ceramics. Only the rim sherds from the Goessens, Stafford, Woodsmen, and Smale sites are used to establish the new pottery types or to add information regarding MacNeish's pottery types. The single exception to this rule is the examination of the Ontario Horizontal pottery type which was restricted to the Downpour site, an early component of the Middle Ontario Iroquois stage.

The description of the Glen Meyer branch pottery types and the unclassified rims is given in Part I of the Appendix. Table 1, Part II in the Appendix, gives the frequencies of the pottery types at the nine sites being examined.

Through the examination of the rim sherds a chronological ordering of the four major sites was attempted. Running from early to late, the temporal sequence of the sites is inferred to be Woodsmen, Goessens, Stafford, and Smale. This ordering is followed on Table 1 although, with the exception of the Downpour site, the samples from the Too, Mivl8, Reid, and Faulds sites were too small to allow their specific chronological placement.

Intra-Type Variation

Intra-type variation refers to the quantitative and qualitative attribute fluctuations observed within a single pottery type at the four major sites under consideration. Since these sites have been placed in chronological order, minor differences within the same pottery type at different sites are felt to reflect the temporal changes or trends within the type itself. While these site differences within a single pottery type are not sufficient to disrupt the effectiveness of the pottery type itself with regard to general time and space considerations, they are of importance with regard to the microtrends within the pottery type. In short, two levels of rim sherd examination are considered: first, the microtrends, or quantitative and qualitative fluctuations of modes *within a single pottery type through time;* and second, the macrotrends, or quantitative fluctuations of *pottery types through time*. The five major pottery types of the Glen Meyer branch are examined at an inter-site and intra-type level on Tables 2 to 6, Part II of the Appendix. These five pottery types had the following combined percentage occurrence at the four major sites: Woodsmen—72.4 per cent; Goessens—78.5 per cent; Stafford—84.5 per cent, and Smale—82.2 per cent.

Chronology

An examination of the pottery type frequencies and certain attribute frequencies from the four major sites has indicated a chronological ordering, running from early to late, of Woodsmen, Goessens, Stafford, and Smale. Two factors presented major difficulties in the chronological ordering of these four sites. These factors are the low sherd samples from the Woodsmen and Smale sites and the close similarities between the Goessens and Stafford sites. The assumption that the pottery types Ontario Oblique, Middleport Criss-cross, and Ripley Plain, which continue into the later stages of the Ontario Iroquois development, will be more prominent on the later sites is partially upheld by an examination of Table 1. These three pottery types were represented by the following percentages: Woodsmen—32.7 per cent; Goessens—53.8 per cent; Stafford—46.4 per cent; and Smale—59.0 per cent.

Assuming the validity of the proposed chronology, the following temporal observations concerning the pottery types can be made:

Ontario Oblique

This pottery type begins as a minority form but rapidly attains a dominant position in the Glen Meyer complex. There is a gradual decrease at the Smale site, and this decrease continues into the Middle Ontario Iroquois stage with the pottery type disappearing as a major type before the Late Ontario Iroquois stage (MacNeish, 1952: 12, fig. 6).

Glen Meyer Oblique

A major pottery type in the Glen Meyer ceramic complex, Glen Meyer Oblique shows a steady decrease in percentage from early to late. It survives into the early period of the Middle Ontario Iroquois stage as one of the varieties in the Uren Corded pottery type at the Uren site (MacNeish, 1952: 19–20).

Middleport Criss-Cross

This type occurs as a common pottery type throughout the Glen Meyer branch. It survives into the Middle Ontario Iroquois stage, being virtually absent at the Uren site but regaining an appreciable popularity at the Middleport site in the late period of the stage.

Stafford Stamped

This pottery type shows an increase in popularity in the latter half of the Glen Meyer branch. It just barely survives into the Middle Ontario Iroquois stage as indicated by a single illustrated rim at the Uren site (Wintemberg, 1928: 59, Plate IV, fig. 14).

Ripley Plain

The Ripley Plain pottery type occurs as a minority type throughout not only the Glen Meyer branch but also the Middle and Late Ontario Iroquois stages. Its simplicity may account for its unspectacular but continuous presence.

Woodsmen Corded

This pottery type is most common in the earliest period of the Glen Meyer branch and dies out before the Middle Ontario Iroquois stage.

Glen Meyer Linear Stamped

This pottery type represents a minor form which shows a slight increase from early to late in the Glen Meyer branch. It would appear that the type is a good predecessor for Lawson Incised (MacNeish, 1952: 14), which played such an important role in the Middle and Late Ontario Iroquois stages.

Goessens Punctate

The Goessens Punctate pottery type has a restricted distribution within the Glen Meyer branch and does not appear to have survived into Middle Ontario Iroquois times.

Glen Meyer Necked

Glen Meyer Necked occurs as a minority type throughout the Glen Meyer sequence. It would appear to represent a possible predecessor of the Middleport Oblique and Pound Necked pottery types (MacNeish, 1952: 14–15, 16–17), which are present in the later stages of the Ontario Iroquois Tradition, although the Ontario Horizontal pottery type is a much better ancestral candidate for these later pottery types.

Goessens Necked

This pottery type has a low and uneven distribution within the Glen Meyer sequence. I have seen a single specimen of the type from a Middle Ontario Iroquois site in the Bruce Peninsula.

Goessens Oblique

This minority type occurs throughout the Glen Meyer sequence but does not appear to survive into the Middle Ontario Iroquois stage.

Stafford Dentate

The Stafford Dentate pottery type occurs as a minority form on the Stafford and Goessens sites. Its similarity to ceramics of the Pickering branch may be indicative of early pre-fusion contact between the two branches.

By using Tables 2 to 6 in Part II of the Appendix, certain modal trends can be seen to support the chronology in part. The presence of bossing on the five major pottery types had the following percentage occurrence: Woodsmen—24.0 per cent; Goessens—26.0 per cent; Stafford—24.0 per cent; and Smale—15.0 per cent. The attribute of bossing survives into the Middle Ontario Iroquois stage where it occurs on 7.0 per cent (MacNeish, 1952: 12, fig. 6) of the rim sherds at the Uren site. Towards the end of this stage at the Middleport site, however, this attribute is absent. Another significant attribute appears to be rim thickness. The mean thickness of the five major pottery types runs as follows: Woodsmen—7.2 mm; Goessens—7.3 mm; Stafford—7.2 mm; and Smale—9.2 mm. This increase in thickness correlates with the thicker vessels of the Middle Ontario Iroquois stage. It does not appear to reflect simply an increase in vessel size, although this is a factor. As will be shown, some of the Glen Meyer vessels attained considerable proportions. A number of other intra-type attributes appear to demonstrate significant changes through time. For example, the technique of impressing with the suture edge of a turtle shell does not survive to the end of the Middle Ontario Iroquois stage. Certain motif and technique attributes of the exterior, interior, and lip of the rim show significant trends expressive of greater variation than is encountered in the Middle Ontario Iroquois stage. Linear stamping, a major technique throughout the Glen Meyer sequence, is present at the Uren site but is rapidly replaced by incising. In fact, virtually all the impressing techniques dominant throughout the Glen Meyer sequence disappear shortly after Uren times. Rim cross-section varieties illustrate a variable frequency distribution, although the forms are trending toward those of the Middle Ontario Iroquois stage. There is no apparent typologically-valid association of specific motifs or technique attributes, or both, with specific rim shape attributes. Rim shape appears to vary independently of the motif and technique attributes until the end of the Middle Ontario Iroquois stage (Middleport). Castellation varieties, which are here regarded as an attribute of the rim, show no particularly significant trends.

Another technique used in establishing the chronological order of the four sites under consideration is the coefficient of similarity (Brainerd, 1951). The coefficient is applied here to the pottery types. As can be seen on Chart 1, Part III of the Appendix, the Smale site is most similar to the Stafford site, slightly less similar to the Goessens site, and least similar to the Woodsmen site. This corresponds chronologically if one assumes that the sites closest to one another in time will exhibit a greater degree of similarity than the sites which are furthest removed from one another in time. The greatest degree of similarity may be seen to exist between the Stafford and Goessens sites; thus it is inferred that these two sites are the most closely spaced in time.

BODY AND NECK SHERD ANALYSIS

Body sherds were separated from neck sherds on the basis of curvature. While curvature is not regarded as a completely accurate means of separating these two categories of sherds, it is felt to be sufficiently trustworthy for purposes of analysis. In short, the relatively few specimens that would be placed in the wrong category could do little to disrupt the general interpretations. For the most part, basal sherds could not be differentiated from body sherds and are, therefore, included in the body sherd analysis.

Body Sherds

The body sherds have been segregated into a number of varieties on the basis of surface treatment, and all the sherds were measured for thickness. Table 7, in Part II of the Appendix, presents the data acquired from the body sherd analysis. The Downpour site has been included for comparative purposes as an early representative of the Middle Ontario Iroquois stage.

Plain Body Sherds

The surfaces of these sherds have been carefully smoothed. Occasional traces of an earlier surface treatment are present, but these impressions have been obliterated beyond recognition. Within the body sherd analysis of the four Glen Meyer sites, 369 specimens or 11.0 per cent of the total were plain. As can be seen in Table 7, plain body sherds have a relatively low occurrence throughout the Glen Meyer development but rapidly gain a prominent position during Middle Ontario Iroquois times. This trend continues until the cessation of pottery manufacturing with the destruction of the Ontario Iroquois.

Scarified Body Sherds

Sherds placed in this category are characterized by a roughly scratched surface. It would appear that the moist surface of the vessel was scraped with a handful of twigs or reeds. These markings may occur horizontally or obliquely and frequently criss-cross one another. Very rarely the striations appear to have been produced by a toothed implement used in a very careless fashion. Within the Glen Meyer sites, 792 specimens or 24.0 per cent of all the body sherds possessed this treatment. This method of surface treatment survived into Middle Ontario Iroquois times but never attained its earlier popularity. It should be noted that what Wintemberg (1928: 16) refers to as scarified body sherds applies only in part to the category presently under consideration. The majority of his scarified sherds would be placed under the category of Ribbed Paddle in this report. Examples of scarified sherds may be seen on Plate VII, figs. 1 to 3.

Fabric-Impressed Body Sherds

These body sherds are most common on the earliest Glen Meyer site. This technique of surface treatment barely survives into the Middle Ontario Iroquois stage. Four hundred and forty-five specimens or 14.0 per cent of the body sherd analysis possessed fabric impressions. The nature of the fabrics involved is discussed in the section of this report dealing with vegetable matter. Examples of fabric-impressed body sherds are illustrated on Plate VII, figs. 4 and 5.

Cord Malleated Body Sherds

The application of a cord-wrapped paddle producing vertical, parallel cord impressions appears to account for the majority of the specimens in this category. Only 196 specimens or 6.0 per cent of the body sherds examined had been treated in this fashion. Within the Glen Meyer sequence there are no appreciable fluctuations of this method of body sherd treatment. It represents a minority form throughout and survives into the later stages of the Ontario Iroquois development. An example is illustrated on Plate VII, fig. 6.

Smoothed-Over Cord Body Sherds

This category represents the dominant method of body sherd treatment throughout the Glen Meyer sequence. It accounts for 1,287 specimens or 40.0 per cent of the analysed body sherds. Fabric-impressed and cord-malleated sherds, particularly the former, were subjected to a final smoothing of the surface which partially obliterated the original surface treatment. This method of surface treatment barely survives into the Middle Ontario Iroquois stage as represented at the Uren site. Examples of smoothed-over cord body sherds are illustrated on Plate VII, figs. 7 to 9.

Scarified-Over Cord Body Sherds

This technique of surface treatment consisted of a final scarification of the initially cord-impressed surface of the vessel. It represents a minority technique within the Glen Meyer sequence, attaining a frequency of only 3.0 per cent or 85 specimens of the total body sherd analysis. It appears to have died out before the Middle Ontario Iroquois stage. An example of this category is illustrated on Plate VII, fig. 10.

Ribbed Paddle Body Sherds

This technique is thought to have been produced by a ribbed paddle but may equally well have been produced by a thong-wrapped paddle. Regardless of which technique was used, the results are a series of parallel impressions which are usually applied to the vessel in a horizontal manner although cases of oblique and criss-cross patterns do occur. These impressions give the surface of the vessel a corrugated appearance. Ribbed paddle impressions are rarely found on Glen Meyer sherds, and only 69 specimens or 2.0 per cent of the body sherds examined possessed the technique. It becomes a dominant surface treatment technique only during the Middle Ontario Iroquois stage. One specimen is illustrated on Plate VII, fig. 11.

Incised Body Sherds

Only three body sherds, representing less than 1.0 per cent of the body sherd analysis, possessed incising. All were from the Smale site. One specimen is illustrated on Plate VII, fig. 12.

Two general paste attributes, which show important changes within the Glen Meyer sequence, are sherd thickness and sherd fissility. As can be seen on Table 7, there is a marked trend towards increased sherd thickness from early to late in the Glen Meyer sequence. This same trend was noted in the thickness of the rim sherds. The other paste feature which shows a marked change in time apparently involves a change in vessel manufacture technique. At the Woodsmen and Goessens sites the sherds are well knit and, while breaking into very small fragments, rarely split vertically. This vertical splitting or fissility of sherds becomes very pronounced at the Stafford and Smale sites. It also carries over into the Middle Ontario Iroquois stage as represented by the Downpour and Uren sites. Such a change in sherd fracture characteristics may reflect an increasing lack of care in the initial preparation of the clay for vessel manufacturing or may be involved in a change in firing techniques.

Neck Sherds

Since the shoulder of the vessel marks the demarcation between the neck and the body of the vessel, no separate category of shoulder sherds is examined. The attributes of the shoulder of the vessel are examined within the neck sherd category.

The neck sherds were divided into varieties on the basis of surface treatment. As can be seen on Table 8, Part II of the Appendix, these varieties, with the exceptions of Decorated and Painted, are the same as those described for the body sherds. The only qualification applicable to the scarified neck sherds is that the striae invariably are horizontal. Decorated neck sherds possess decoration to, or almost to, the shoulder of the vessel. This decoration, for the most part, is merely an extension of the rim decoration. All three painted sherds possessed a single black band of paint applied vertically on the neck. Identical sherds have been seen on Middle Ontario Iroquois stage sites east of Toronto and a single specimen has been found on the Miller site of the Pickering branch (W. A. Kenyon, pers. comm.). These sherds seem to occur as single isolated specimens. Examples of painted neck sherds are illustrated on Plate VIII, figs. 1 and 2.

The general temporal trends seen in the analysis of the neck sherds suggest a decrease in decorated sherds and an increase in plain sherds. While the figures from the Smale site disrupt this postulated trend, it is felt that the large samples from the Goessens and Stafford sites should be given more weight than the small samples from the remaining sites. The tendency to restrict the exterior decoration to the collar area of a plain necked vessel in the Middle and Late Ontario Iroquois stages supports the trends seen at the Goessens and Stafford sites. The sudden increase in the percentage of ribbed paddle-impressed neck sherds at the Downpour site correlates with the body sherd analysis. Although a rare trait, the presence of painted neck sherds illustrates a continuity between the Glen Meyer branch and the Middle Ontario Iroquois stage as represented by the Downpour site. There is a marked increase at the Downpour site of scarified neck sherds as opposed to body sherds. This may reflect attempts at smoothing the neck region of the vessel, a process which appears to have been increasing.

Relatively few sherds possessing a clear point of demarcation between the neck and the body (shoulder) of the vessel could be recognized. This condition is probably due to the rather incipient angle which separates these two regions of the vessel. Examples of sherds exhibiting features of the shoulder region are illustrated on Plate VIII, figs. 3 to 7.

RECONSTRUCTED VESSELS

Three reconstructed vessels are available in the Glen Meyer sequence. Two vessels (VIII-F-29977 and VIII-F-30837) were constructed by T. E. Lee, and one vessel (VIII-F-29221) was reconstructed by J. A. Dellaire of the National Museum staff. All three vessels are illustrated on Plate IX. Table 9, Part II of the Appendix, presents the basic data derived from the three vessels. It may be noted that the overall form characteristics of the three Glen Meyer vessels conform closely to the vessel forms encountered in the Middle Ontario Iroquois stage.

JUVENILE CERAMICS AND CERAMIC WASTE

A number of fragments from small and very crudely-made pots were recovered from all the Glen Meyer sites. Contrary to the commonly held views that these fragments represent toys for children, vessels for seeds, or models for larger vessels, I believe they represent the products of the young girls learning the art of pottery vessel construction. Such fragments appear on all ceramic sites that I am familiar with, and, indeed, they are to be expected since an apprentice is unlikely to produce a mature ceramic vessel indistinquishable from the product of the adult potter. Examples of juvenile rim sherds are illustrated on Plate X, figs. 1 to 5.

Ceramic wastage consisted of balls, cylinders, and irregular masses of tempered and untempered fired clay, regarded as the waste products of pottery manufacture.

Pipe Analysis

Pipe fragments are rare within the Glen Meyer sequence. Indeed, pipes do not attain a major position in the Ontario Iroquois Tradition until the Middleport substage of the Middle Ontario Iroquois stage. Although the samples are few, certain trends in pipe varieties can be observed within the Glen Meyer sequence. Plate X illustrates pipe bowl and stem fragments from the Smale site (figs. 6, 7, 16), the Goessens site (figs. 8–12), and the Stafford site (figs. 13–15). The Smale site pipe fragments differ in part from those recovered from the other Glen Meyer sites and more closely resemble pipes found at the Krieger site near Chatham, Ontario (Kidd, 1954: 168–169). Fig. 6 is so small and crude that it appears to represent the handiwork of a child. The bowl possesses a slightly constricted neck and a bulbous base. Decoration running from the lip down consists of short oblique gashes above two encircling incised lines, below which a series of twin incised oblique lines form a zigzag pattern around the bowl. The triangular spaces outlined by this zigzag pattern are filled with small circular punctations. Fig. 7 represents a fragment from a well-made pipe. Its form is reminiscent of Krieger pipes in that its base diameter appears to slightly exceed its mouth diameter. Decoration has been done with a cord-wrapped stick and consists of a single horizontal line below the lip, below which three oblique lines demarcate triangular areas which have been filled with horizontal lines. Below this, in turn, occur an indeterminable number of horizontal lines. The only other bowl fragment from the Smale site is a small plain fragment similar to fig. 11. The two stem fragments from the site were too minute to obtain any pertinent data. Pipe bowl fragments at the Goessens site consisted of two cylindrical bowl fragments possessing numerous punctations (fig. 8); one bulbous bowl fragment possessing the same type of punctations (fig. 9); three cylindrical bowl fragments (fig. 10), which are plain except for one to three encircling incised lines below the lip; and one plain cylindrical bowl fragment (fig. 11). The Stafford site produced two plain cylindrical bowl fragments (fig. 13) and three very crude, plain specimens (fig. 14). Pipe stems are short, ranging from 30 mm to 36 mm in length with a mean of 33.2 mm. All are plain (figs. 15 and 16) with the exception of fig. 12 which possesses an engraved rib-like pattern along both sides. The pattern has been filled with ink for illustration purposes. An incompletely drilled stem section of a limestone pipe was recovered from the Stafford site. With this exception, all the stem holes were produced by moulding the clay around a reed which was removed in firing. Figure 1 illustrates the pipe stem cross-sections.

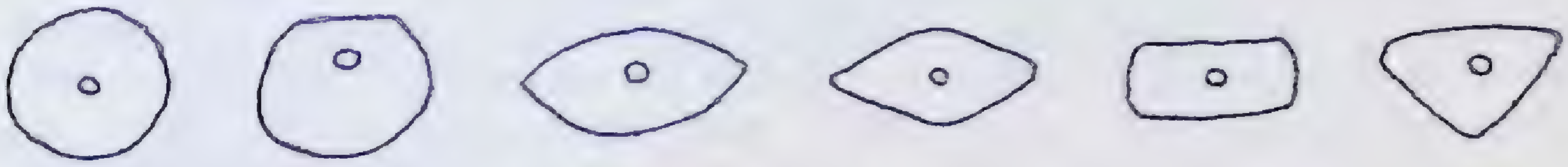


FIGURE 1—*Glen Meyer branch pipe stem cross-sections*

The scarcity and crudity of the majority of the pipes from the Glen Meyer branch suggest that smoking was a poorly established trait. The Glen Meyer pipes do not differ appreciably in form, crudity, or frequency from those found at the Uren site (Wintemberg, 1928: 39–41), and it is not until the end of the Middle Ontario Iroquois stage, as seen at the Middleport site, that the use of pipes becomes a firmly established element within the Ontario Iroquois Tradition.

Lithic Analysis

PROJECTILE POINTS

Triangular projectile point varieties are dominant throughout the Glen Meyer sequence. The basic form and metrical data for the triangular point are presented on Table 10, Part II of the Appendix. In general, the form characteristics consist of a slightly concave or straight base and a straight or convex blade edge configuration. A few specimens retain the primary flake scar on one face, but the majority possess bifacial secondary retouch. No particularly significant trends are seen through time, although this impression may result from relatively low samples. The majority of the triangular points closely resemble the Madison Point (Ritchie, 1961*b*: 33–34) in general form characteristics, although they are longer and thicker. Two specimens, one each from the Goessens and Smale sites, more closely conform to the description of the Lavanna Point (*ibid.*: 31–32). Examples of the triangular projectile point varieties are illustrated on Plate X, figs. 17 to 21.

Other projectile point forms are illustrated on Plate X and consist of the following: fig. 22-a, contracting, short-stemmed point with well-demarcated shoulders (Goessens site-2, Smale site-1); fig. 23-a, corner-notched variety (Goessens site-3); fig. 24-a, straight, long-stemmed variety with well-demarcated shoulders (Goessens site-1, Stafford site-1); fig. 25-a, leaf-shaped variety (Stafford site-2, Smale site-1); fig. 26-a, contracting stemmed variety with poorly defined shoulders (Goessens site-1); fig. 27-a, corner-notched, barbed variety with serrated blade edges (Goessens site-1); fig. 28-a, triangular variety with broad, shallow side notches (Stafford site-1); and fig. 29-a, fragment of a lanceolate form (Stafford site-1).

Seven projectile points of apparent Archaic or Middle Woodland authorship were recovered from three of the Glen Meyer sites. Four specimens came from the Stafford site, two specimens from the Goessens site, and a single specimen from the Smale site. Examples of these points are illustrated on Plate XI, figs. 1 to 4. The projectile points illustrated on Plate X, figs. 27 and 29, may also be assignable to one of these earlier complexes.

BLADES

Blade varieties are illustrated on Plate XI and consist of triangular (fig. 5), asymmetrical triangular (fig. 6), and ovate (figs. 7 and 8) forms, and bifacially retouched flakes (fig. 9). In length the triangular blades ranged from 63 mm to 70 mm with a mean of 66.5 mm, and in basal width they ranged from 28 mm to 41 mm with a mean of 36.3 mm. The single complete asymmetrical triangular blade had a length of 56 mm, and the two basal widths were 31 mm and 34 mm. Ovate blades ranged from 26 mm to 80 mm in length with a mean of 50.7 mm, and from 16 mm to 47 mm in maximum width with a mean of 33.5 mm. Blade thickness ranged from 5 mm to 12 mm with a mean of 8.0 mm. The Woodsmen site produced a single triangular blade. The Goessens site produced three triangular blades, one asymmetrical triangular blade, five ovate blades, and eleven blade fragments. At the Stafford site two triangular blades, one asymmetrical triangular blade, three ovate blades, and one bifacially retouched flake were recovered. The Smale site produced one triangular blade, two ovate blades, and one bifacially retouched flake.

SCRAPERS

Three major scraper varieties were found in the Glen Meyer complex, and one of these varieties appears to be sufficiently specialized to warrant a type name. These three varieties are the Glen Meyer end scraper, the random flake scraper, and the spokeshave or crescent scraper.

Glen Meyer End Scrapers

The diagnostic features of the Glen Meyer end scraper are a very high and steep scraping face on a large, heavy linear flake whose dorsal surface frequently forms a distinct ridge. Not infrequently a portion of the original flint pebble cortex is present. With about half the specimens, the ventral surface possesses trimming flakes. Also, on approximately half of the specimens examined, the ventral surface was markedly concave, giving the scraping end a beaked appearance in cross-section. Total length and maximum scraping end width measurements produced ranges of from 29 mm to 80 mm and 19 mm to 36 mm with means of 46.3 mm and 26.9 mm respectively. The height of the scraping face from ventral to dorsal surface ranged from 10 mm to 22 mm with a mean of 13.6 mm. Examples of the Glen Meyer end scraper are illustrated on Plate XI, figs. 10 and 11.

Random Flake Scrapers

As the name implies, these scrapers have been manufactured from random flakes. Usually only one edge possesses modification into a scraping face, although occasionally two edges on a single flake may be so modified. Examples are illustrated on Plate XI, figs. 12 and 13.

Spokeshave Scrapers

These artifacts are usually represented by a random flake into whose edge or edges one or more crescent scraping edges have been worked. They are thought to have functioned as a wood or bone working tool where the crescent scraping edge would be particularly effective in forming rod-shaped implements. There is always a hazard in inferring function to any particular tool. However, the general features of the spokeshave scraper would render it relatively ineffective in the preparation of hides except, perhaps, for trimming thongs. Examples of spokeshave scrapers are illustrated on Plate XI, figs. 14 and 15.

Miscellaneous Scrapers

This miscellaneous category includes the traditional thumbnail scraper with the major scraping edge opposite the point of percussion removing the flake (Plate XI, fig. 16). One of these scrapers possesses side-notches (Plate XI, fig. 17). Another form of end scraper is represented by the bifacially flaked triangular blade with the blade base being modified into a scraping edge (Plate XI, fig. 18).

Table 11, Part II in the Appendix, presents the occurrence of the various scraper varieties at the four major Glen Meyer sites. Although the relative numbers of scrapers involved is small, certain general trends may be observed on Table 11. The random flake scraper appears to have dominated the scraper category throughout the Glen Meyer sequence. The spokeshave scraper variety, however, shows a decreasing occurrence from early to late.

DRILLS

Twelve drills were recovered from the Glen Meyer sites. Seven came from the Goessens site, three from the Stafford site, and two from the Smale site. The Bulbous Base variety (Plate XII, fig. 1) was most common with three specimens appearing at the Goessens site and single examples from the Stafford and Smale sites. Three examples of the Simple drill variety with convex or straight base were present with two specimens appearing at the Stafford site and a single specimen at the Goessens site (Plate XII, fig. 2). Triangular drills (Plate XII, fig. 3) were represented by two specimens from the Goessens site. A single example of the Winged drill (Plate XII, fig. 4) from the Goessens site may be assignable to an earlier occupation. Also, a single example of a simple flake having been reworked to a drill point (Plate XII, fig. 5) came from the Smale site.

STRIKE-A-LIGHTS

Three unique specimens appeared to have been used in a hammering process. All were flaked from flint, and the single specimen from the Goessens site possessed a stem and in this respect resembled a bunt (Plate XII, fig. 6). This specimen possessed strong battering at the point end. The remaining two specimens, one from the Stafford site and one from the Smale site, were ovate acuminate in shape. Both possessed battering at the base (Plate XII, fig. 7). It may be possible that these artifacts functioned as flint flakers rather than strike-a-lights. Regardless of function, they all bear evidence of hammering at one end.

SPECIALIZED TOOLS

Four specimens, two from the Goessens site (Plate XII, figs. 8, 9) and two from the Smale site (Plate XII, figs. 10, 11), are regarded as specialized gouging-cutting tools. Figs. 8 and 9 both possess flat ventral surfaces and steeply flaked edges converging to a point. Fig. 10 resembles a small stemmed projectile point with an asymmetrically bevelled blade. This tool may have been hafted and used as a side scraper. Fig. 11 represents a small flake with a flat ventral surface and very steeply flaked edges.

CHOPPERS

Two artifacts were regarded as choppers. The specimen from the Goessens site merely consisted of a large flint cobble which had been split vertically and then bifacially flaked along one edge. The slate specimen, from the Stafford site (Plate XII, fig. 12), is ovate in shape and has been bifacially flaked.

ADZES

All the bits, complete and fragmented, were assignable to the adze classification on the basis of their asymmetrical or bevelled, lateral cross-section. No axes possessing the necessary symmetrical, lateral cross-section were observed. Nine adzes, two from the Stafford site and the remainder from the Goessens site, were sufficiently complete to allow length and bit width measurements to be taken. Length ranged from 73 mm to 143 mm with a mean of 90.8 mm, and bit width ranged from 21 mm to 59 mm with a mean of 43.3 mm. In addition to the complete specimens, two fragments came from the Woodsmen site; two fragments, six polls, two bits, and one complete but badly battered specimen from the Goessens site; one fragment, three polls, and two bits from the Stafford site; and one fragment from the Smale site. A single example from the Goessens site possessed pecked lashing depressions, which are outlined in ink in the illustration. Examples of adzes are illustrated on Plate XII, figs. 13 to 15.

ABRADERS

With only three exceptions, a fine silty sandstone was used for abraders in the Glen Meyer sequence. The exceptions, one from the Goessens site and two from the Stafford site, were made from crystalline rock. All the specimens were represented by natural pebbles or slabs of stone on which evidence of abrading would occur on one or both faces. One specimen came from the Woodsmen site, 24 specimens from the Goessens site, and 32 specimens from the Stafford site. A typical example is illustrated on Plate XIII, fig. 1.

HAMMERSTONES

All the hammerstones appear to represent natural cobbles which were selected for their circular or oval shape. Irregular cobbles were also used. The Woodsmen site produced a single flint nodule hammerstone and a fragment of what was probably an irregular cobble hammerstone. The Goessens site produced two fragmented flint nodule hammerstones, two ovate hammerstones, and one circular hammerstone. At the Stafford site, a single flint nodule hammerstone was found, as well as three circular hammerstones and five irregular cobble hammerstones. The Smale site produced two edge fragments of circular hammerstones which may also represent fragmented anvil stones. Examples of a flint nodule hammerstone and a circular hammerstone are illustrated on Plate XIII, figs. 2, 3.

ANVIL STONES

All the anvil stones were bi-pitted and circular to roughly ovate in outline. All were manufactured from natural, water-worn cobbles and tended to be relatively flat on the pitted surfaces. Hammering facets tended to be continuous around the outside edge, although one specimen, from the Goessens site, possessed only two small areas of hammering along this edge. This specimen also represented the single anvil stone manufactured from a rather soft sandstone, all the rest being relatively hard, well-indurated, igneous, and metamorphic cobbles. Examples of anvil stones are illustrated on Plate XIII, figs. 4, 5.

SLATE PEBBLE PENDANTS

Ten of these artifacts were found, two from the Stafford site and the remainder from the Goessens site. With one exception, these pendants consist of natural, flat, ovate slate pebbles which have a bi-convexly drilled suspension hole at one end. The single exception came from the Goessens site. This specimen possessed overall grinding and had a large V-notch cut into the base giving the pendant a general V-shape. This artifact and a typical slate pebble pendant are illustrated on Plate XIII, figs. 6, 7.

MISCELLANEOUS

A single red ochre paint stone was found at the Stafford site (Plate XIII, fig. 8). Evidence of the use of red ochre, however, also comes from the Woodsmen and Goessens sites in the form of an occasional body sherd with a thin, irregular red ochre wash on the surface (Plate VII, fig. 4). The use of a black paint appeared on three of the neck sherds (Plate VIII, figs. 1, 2).

Two fragments of iron pyrites were found at the Goessens site, and although no evidence of battering is present they may have functioned as a part of a strike-a-light kit. One of these specimens is illustrated on Plate XIII, fig. 9.

A single steatite bead, 19 mm long and approximately 18 mm in diameter, was recovered from the Smale site (Plate XIII, fig. 10).

A problematical object from the Woodsmen site consisted of a conical fragment of schist, 67 mm in length and 48 mm in basal width, with strong grinding at the blunted point and along both edges.

From the Smale site a flat elliptical fragment of schist possessed strong grinding along one face.

Bone Analysis

Artifacts manufactured from bone were relatively scarce throughout the Glen Meyer sequence. Not only was the bone industry poorly represented, but it was also poorly developed. The nature of the bone preservation suggests that soil acidity was not a factor in the scarcity of osseous matter except at the Smale site.

BONE AWLS

Complete and fragmented bone awls were represented by 19 specimens at the Goessens site and by three specimens at the Stafford site. At the former site 12 splinter awls, three catfish spine awls, two deer cannon bone awls, one deer ulna awl, and an awl made from a deer mandible were found. All three awls from the Stafford site consisted of sharpened bone splinters. Plate XIV illustrates varieties of awls which were manufactured from a deer ulna (fig. 1), a deer cannon bone (fig. 2), a deer mandible (fig. 3), catfish spines (fig. 4), and, most frequently, from a simple, splintered, long bone fragment (fig. 5).

BONE BEADS

Single examples of bird bone beads were recovered from the Woodsmen, Goessens, and Stafford sites. These artifacts were produced by scoring and breaking a bird long bone to the desired length and then carelessly grinding the rough edges. Figs. 6 and 7 of Plate XIV illustrate two of the specimens.

MISCELLANEOUS

Four fragments of a worked turtle shell carapace appeared at the Woodsmen site. One of the fragments possessed a bi-convex perforation, and the others exhibited evidence of cutting and grinding along the edges. It is thought that these fragments may represent the remains of a turtle shell rattle or, possibly, a bowl. The perforated specimen and one of the ground fragments are illustrated on Plate XIV, figs. 8, 9.

A small antler tine from the Goessens site possessed a ground and indented base as well as some evidence of cutting and grinding at the tip. This artifact is regarded as a projectile point and is illustrated on Plate XIV, fig. 10.

The large tubular bone object illustrated on Plate XIV, fig. 11 is also from the Goessens site. Cutting and grinding are present at both ends. This item may have functioned as a large bead, handle, or sucking tube.

Fig. 12 on Plate XIV represents a bone splinter with a rounded, ground point from the Goessens site. Its function is unknown.

Fig. 13 on Plate XIV is a length of antler which possesses evidence of cutting and breaking at both ends. Slight scarification at both ends of this object from the Goessens site suggests that it may have functioned as a flaker.

The Goessens site also produced a small rib fragment which had strong grinding along both edges. It is illustrated on Plate XIV, fig. 14.

Two small fragments, one of antler and one of bone, both from the Goessens site, possess evidence of cutting and grinding but are too fragmented to infer function.

Faunal Analysis

Only the Goessens site produced sufficient faunal remains to allow an effective examination.

Mr. P.M. Youngman of the Zoology Section of the National Museum identified the following mammal species which are listed in descending order of frequency: *Odocoileus virginiana* (Virginia deer); *Sciurus carolinensis* (grey squirrel); *Procyon lotor* (raccoon); *Ondatra zibethicus* (muskrat); and *Ursus americanus* (black bear).

Dr. D.E. McAllister of the Zoology Section of the National Museum identified the following fish species, which are listed in descending order of frequency: *Stizostedion* (walleye or sauger); *Ictalurus punctatus* (channel catfish); Catostomidae (sucker); *Ictalurus nebulosus* (brown bullhead); *Aplodinotus grunniens* (freshwater drum); *Perca flavescens* (yellow perch); *Acipenser fulvescens* (lake sturgeon); and *Esox* (northern pike or muskellunge).

The single shell fragment from the Goessens site was identified by Dr. A.H. Clarke, Jr. of the Zoology Section of the National Museum as *Lampsilis ovata* Say (a freshwater mussel).

Native Copper

A single item of native copper was found at the Stafford site. This artifact consists of a length of copper wire which has been bent around itself and pounded flat to produce a circular pendant or bead. The specimen is illustrated on Plate XIV, fig. 15.

Vegetable Remains

Information on vegetable remains was derived from carbonized foodstuffs and fabric impressions on pottery.

CORN

Four kernels of corn were recovered from the Goessens site, and fifty-seven corn kernels plus fragments and a small portion of a corn cob came from the Stafford site. The corn cob fragment was too small to determine the number of rows that were present.

FABRICS

All the body sherds placed in the category of fabric impressed appeared to have been impressed with a twined fabric. In most cases, owing to the scrubbing or puddling of the fabric into the moist clay, a clear fabric impression was lacking. In the instances where a clear impression was available, it was always assignable to a twined fabric, and these impressions bore sufficient resemblance to the scrubbed or puddled impressions to assign the latter group to the twined category. Also, the vast majority of the Smoothed-Over Cord body sherd category appeared to involve a fabric which most likely falls into the twined category. I did not feel qualified to segregate the sherds into varieties of twining and have left this task to someone more knowledgeable in textiles.

The preceding description of the archaeological complex, designated the Glen Meyer focus in earlier literature and referred to as the Glen Meyer branch in this report, has attempted to demonstrate a chronological development of a group of closely related sites located in a restricted area of southwestern Ontario. In general, the trends through time have been expressive of gradual cultural change within a group of relatively isolated villages. These developments have also been approaching the later Ontario Iroquois pattern. Quite suddenly the Glen Meyer sequence is terminated, and in its place a complex, characteristic of southeastern Ontario, is found. This intrusive complex is called the Pickering branch, and its sudden appearance in southwestern Ontario can only be explained by conquest. The Glen Meyer branch, as an integrated cultural development, is destroyed. A substantial number of the Glen Meyer elements, however, are to be found in the conquering complex and in later sequences. It is, therefore, inferred that the Pickering branch absorbed the Glen Meyer branch rather than completely obliterating it. This pattern of cultural absorption, through the adoption of conquered enemies, is a major element of recorded Iroquois warfare. The absorption of the Glen Meyer branch created a broad, homogeneous cultural base over much of Southern Ontario and a large area of southwestern New York State, and marked the beginning of the Middle Ontario Iroquois stage. The agent of this coalescence, the Pickering branch, however, has a long sequence of cultural development in southeastern Ontario. It is this sequence which will now be examined.

THE PICKERING BRANCH

The Pickering Culture, as it is called by Mr. W. A. Kenyon of the Royal Ontario Museum, has only recently appeared upon the scene of Ontario archaeology. Our knowledge of the early developments of the Pickering branch rests largely on four sites. These are the Frank Bay site on Lake Nipissing (Ridley, 1954), the Boys site east of Toronto (Ridley, 1958*a*), the Miller site, also east of Toronto (Kenyon, 1959*a*; 1960), and the East Sugar Island site on Rice Lake near Peterborough (Ritchie, 1949). Two other sites, the Bennett site north of Hamilton and the Barrie site (Ridley, 1958*a*) west of Lake Simcoe, and one of the components of the Frank Bay site presented a problem. The difficulty stems from the fact that all three components are assignable to the late, or terminal, period of the Pickering sequence and thus are very similar to the early Middle Ontario Iroquois stage sites, including those in southwestern Ontario with absorbed elements from the conquered Glen Meyer branch. What appears to have happened is that late in the Pickering sequence a western portion of the Pickering branch conquered and absorbed the Glen Meyer branch and colonized southwestern Ontario and

New York. Meanwhile, the cultural development of the Pickering branch, in the original homeland of southeastern Ontario, continued uninterrupted. Thus it happened that late Pickering branch sites, which were occupied prior to the conquest of the Glen Meyer branch, bear a close similarity to later Middle Ontario Iroquois stage sites in southwestern Ontario owing to the recent Pickering domination of the area. In this respect, the Middle Ontario Iroquois stage is created not only by the conquest of the Glen Meyer branch but also by the continued cultural development of the Pickering branch in southeastern Ontario. As such, there is an unbroken cultural development in southeastern Ontario from the early Ontario Iroquois stage (Pickering) to the Middle Ontario Iroquois stage, whereas in southwestern Ontario the Early Ontario Iroquois stage (Glen Meyer) has been destroyed and absorbed by the southwestern expansion of the Pickering branch. And, as would be anticipated, the Middle Ontario Iroquois stage sites in southwestern Ontario possess far more Glen Meyer traits than contemporaneous Middle Ontario Iroquois stage sites in southeastern Ontario. The problem was whether to describe the late Pickering branch sites of southeastern Ontario in the Early Ontario stage or to use them as comparative units in the Middle Ontario Iroquois stage. Since it is a problem of transition, both approaches are necessary. As such, the Bennett, Barrie, and the 'Barrie-Uren' component of the Frank Bay site will be examined as terminal components of the Pickering branch, as well as comparative units in the Middle Ontario Iroquois stage. While such a treatment of the data may be confusing, it is necessary to effectively express continuities and differences at this critical stage in the Ontario Iroquois Tradition. The simplistic view of two tribes blending to form a common cultural base for the Ontario Iroquois is too great a sacrifice of the archaeological data to interpretational neatness. A common base was formed predominantly through the force of the Pickering branch. However, cultural traits of the Glen Meyer branch which persisted after the conquest cannot be minimized and may, in part, reflect differences seen between the Neutral-Erie and the Huron-Petun branches of the Late Ontario Iroquois stage.

Information bearing on the Pickering branch is variable. The complete chronology is present at the Frank Bay site (Ridley, 1954: 44–47) starting with the 'Primary Transitional Stratum' and passing through the 'Frank Bay Transitional Stratum' to terminate with the 'Barrie-Uren Stratum.' Quantitative data from this site, however, are lacking, and the main value of the site lies in the stratigraphic demonstration of the Pickering branch sequence. Indeed, virtually the entire Ontario Iroquois Tradition for southeastern Ontario is present at this truly amazing site, starting with the earliest Pickering complex and ending with historic Huron. Single component sites in southeastern Ontario provide the quantitative and qualitative information needed to fill in the complete, but descriptively weak, chronology of the Pickering branch found at the Frank Bay site.

The Miller site (Kenyon, 1959*a*; 1960), to the east of Toronto, would be roughly contemporaneous with the Primary Transitional Stratum at the Frank Bay site. A great deal of information is available from the Miller site since the station has been nearly completely excavated. The village is palisaded and contains large rectanguloid house structures, one of which is 57 feet by 24 feet, and possesses a line of five central hearths. Multiple secondary burials occur in and around the village and contain little or no grave goods. Corn agriculture and fishing appear to represent the main subsistence activities (Kenyon, 1960). In a letter dated April 24, 1961, Mr. Kenyon informed me of a radiocarbon date from the Miller site. This reading was A.D. 1125±70 (S-108). Mr. Kenyon is now preparing a comprehensive report on the Miller site and has most kindly made available to me certain data.

The Boys site, also to the east of Toronto, was discovered by Dr. C. H. D. Clarke who was assisted in the excavation by Mr. Frank Ridley. Ridley analysed the material recovered from the excavation and published his interpretations (Ridley, 1958*a*). The material recovered from the Boys site appears to be largely coeval with material obtained from the Frank Bay Transitional Stratum of the Frank Bay site and represents a development out of the complex seen at the Miller site and the Primary Transitional Stratum of the Frank Bay site.

The East Sugar Island site is located on Rice Lake, a portion of the Trent Waterway of southeastern Ontario. Dr. William A. Ritchie (1949) excavated and reported upon the site. The small amount of Pickering branch material recovered is very similar to that of the Boys site. All the material was found in the Loam Stratum of the site which also produced later Iroquois pottery and six Owasco rim sherds.

The Barrie site, located to the west of Lake Simcoe (Ridley, 1958*a*), represents a development out of the complex found at the Boys site and would be contemporaneous with the Barrie-Uren Stratum of the Frank Bay site.

The Bennett site, located north of Hamilton, is also assignable to the late Pickering branch and would be roughly coeval with the Barrie site and the Barrie-Uren Stratum of the Frank Bay site. A full-scale excavation of the site by the National Museum of Canada and McMaster University in the early summer of 1962 uncovered abundant settlement pattern data and a considerable amount of material which I am presently analysing. As such, the statements on the Bennett site in this paper will be of a preliminary nature; a monograph on the site will be submitted for publication in the near future. The village was located on a small knoll quite distant from any navigable streams and was surrounded by a double palisade. Numerous portions of house structures and other features were encountered inside the village. The only complete longhouse was rectangular in shape with rounded ends and measured 55 feet by 25 feet. Numerous refuse and storage pits were excavated as well as a number of burials which consisted of both flexed and bundle interments. Carbonized corn kernels and an abundance of deer and fish remains were indicative of the subsistence pattern of the inhabitants of the village. A radiocarbon date for the site gave a reading of A.D. 1260 ± 60 (GSC-143).[1]

In addition to the preceding sites, a small amount of Pickering branch material is deposited in the National Museum of Canada. The rim sherds illustrated on Plate XV were acquired from these collections.

It is the information from the preceding sites and the material from the Museum collections which represent the basis for establishing the chronological sequence which makes up the Pickering branch. This chronology is largely established on ceramic evidence since pottery represents the major trait to be found on the Pickering branch components. Also, the published reports have presented more specific information on the pottery, especially the rim sherds. Any attempt to establish a chronological sequence within a complex, based as it is upon published accounts on scattered components and a small amount of actual material, is a hazardous undertaking. Fortunately the published material has been presented in such a way that, while I disagree with many of the interpretations, it is possible to use the data for chronological purposes. Ridley, in his Frank Bay report (1954), for example, has illustrated many of the rim sherds from the two pertinent strata. Also, his Boys and Barrie sites report (Ridley, 1958*a*) contains good illustrations and descriptions of the rim sherd varieties. The material illustrated and described by Ritchie is sparse but significant. I have been fortunate enough to examine the completed ceramic analysis carried out by Mr. W. A. Kenyon on the Miller site. This report, shortly to be published, will represent a solid base from which to trace the development of the Pickering branch.

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[1] An additional reading of A.D. 1280 ± 100 (M-1527) was obtained from charcoal collected from beneath one of the burials interred in a refuse pit.

Since Ridley (1958*a*) has established a rim sherd typology for a portion of the complex presently under discussion, it is mandatory that I present my reasons for not accepting the earlier typology in its entirety. Though many of Ridley's ceramic interpretations are felt to be quite valid, there exists an erratic combination of 'lumping' and 'splitting' tendencies within his typology which I cannot accept. It is felt that Ridley's types do not, in many cases, capitalize on the potential of the ceramic complex under consideration and that a perpetuation of the types could cloud certain issues. There is also a tendency for Ridley to draw major conclusions from rather superficial ceramic evidence. Each of the types considered in Ridley's 1958 report will be examined individually in order that their strengths and weaknesses, as I see them, may be more fully understood. Some of the types to be discussed apply to the Middle Ontario Iroquois stage of this report which will be examined subsequently.

Ontario Horizontal (p. 5, Plate 3, figs. B–F)

This pottery type was established by MacNeish (1952: 16) and concurred in by Ridley. Additional data on the pottery type's eastern and northern distribution are given. Ontario Horizontal is regarded as predominantly a Middle Ontario Iroquois stage type in this report.

Iroquoian Linear (p. 5 and 11, Plate 3, figs. A,I,J,K,L; and Plate 4, fig. A)

This pottery type represents a slightly changed term for MacNeish's Iroquois Linear pottery type (MacNeish, 1952: 18–19). The reason given for changing 'Iroquois' to 'Iroquoian' is that the word 'Iroquois' refers specifically to the historic Five Nations and, therefore, is 'misleading.' Since the word 'Iroquois' is used anthropologically to refer to a culture pattern and not to any particular tribal grouping within that cultural pattern, it has been omitted as it is unnecessary and perhaps confusing.

The derivation of the Iroquois Linear pottery type from earlier varieties in the Pickering branch (Bossed Scugog Punctate Collar), as proposed by Ridley, is an important contribution. This pottery type is widespread throughout the Iroquois culture area and survived for only a short time, thereby raising the possibility of its use as a horizon marker. Also, the suggestion that the Ontario Horizontal pottery type developed out of Iroquois Linear is quite sound.

Minor attributes, not mentioned in MacNeish's description but found on the Boys and Barrie sites' Iroquois Linear rim sherds, which are indicative of their temporal and spatial position, are exterior bosses or interior punctates and the occasional use of dentate stamp to produce the vertical elements below the horizontal motif. Iroquois Linear is a dominant late Pickering branch and early Middle Ontario Iroquois stage pottery type.

Barrie Linear (p. 11, Plate 2, fig. E; and Plate 4, fig. E)

The specimen illustrated on Plate 2, figure E, does not fit the pottery type description, and the description of the specimen illustrated on Plate 4, fig. E, does not appear to deviate sufficiently from the description of the Iroquois Linear pottery type to allow an effective separation.

Bossed Scugog Punctate Collar (p. 11, Plate 1, fig. D; Plate 3, figs. G and H)

The attributes which make up this variety are specific and consistent and would appear to represent a segregable pottery type. These attributes are—a channelled collar, the exterior of which is covered with horizontal rows of linear punctates or 'push-pull'; a row of closely spaced exterior bosses which are separated from one another by a dividing punctate; an undecorated neck. The observation that this type was derived from the Scugog Classic Bossed variety and is ancestral to the Iroquois Linear type is demonstrable.

Scugog Classic Bossed (p. 14, Plate 1, figs. A–C; Plate 6, figs. C and D)

This variety appears to be a justified type on the basis of extensive neck decoration which allows its separation from the Bossed Scugog Punctate Collar type. As stated by Ridley, a demonstrable evolution of pottery types is seen to extend from the Scugog Classic Bossed pottery type to the Bossed Scugog Punctate Collar pottery type to the Iroquois Linear pottery type and, finally, to the Ontario Horizontal pottery type. The linear punctation technique dominates this early development, but it gradually is replaced by the interrupted linear or push-pull technique. The sequence of motif changes involved in this evolution consists of the loss of neck decoration to produce Bossed Scugog Punctate Collar, the loss of the closely spaced, punctate-segregated exterior bosses to produce Iroquois Linear, and the transition from push-pull to incising resulting in Ontario Horizontal. The advisability of using the attribute of bossing as a determining type attribute must be raised at this time. Bossing in the Pickering branch, as was the case in the Glen Meyer branch, appears as an attribute which gradually dies out. The later pottery varieties, which do not possess the bosses, are identical in all other respects to the earlier bossed varieties. Segregating these non-bossed, later varieties into a new type because of the absence of bossing thereby tends to disrupt a continuity through time of a complex of attributes making up a type because one attribute disappears. Ridley's description of Iroquois Linear mentions the presence of exterior bosses in 'many examples.' How are such rim sherds segregated from the Bossed Scugog Punctate Collar type? I feel that the answer lies in a change in bossing technique. The closely spaced, punctate-segregated bosses so characteristic of the Pickering branch are not illustrated on the bossed examples of Iroquois Linear described by Ridley, nor do they appear on pertinent sherds that the writer has examined. To the contrary, the bosses illustrated by Ridley (Plate 3, figs. J and possibly A) and those I examined on Iroquois Linear rims closely resemble the Glen Meyer bossing technique in being widely spaced and generally lower on the rim. Apparently this change in bossing technique is sufficient to differentiate the bossed Iroquois Linear rims from the Scugog Punctate Collar rims. This same problem appears on Plate XV of this report where figs. 5 to 7 would fall into the Scugog Classic Bossed type except that the bosses are missing. At the present stage of our knowledge it is perhaps best that the differentiating attribute of bossing on the Scugog Classic Bossed and Scugog Punctate Collar pottery types be retained. When more comparative data are available, however, it is felt that for the sake of developmental continuity within the Pickering branch, bossing should be examined as an isolated rim sherd attribute and not as an attribute whose presence or absence determines a myriad of pottery types.

Impressed Oblique (p. 12, Plate 1, fig. L; Plate 4, figs. B and C)

Ridley mistakenly concludes that MacNeish, in his description of the Ontario Oblique pottery type (MacNeish, 1952: 18), attributes the decorative technique to incising, and since the rims from the Boys and Barrie sites are linear stamped, he established the Impressed Oblique pottery type. In reality, MacNeish makes no statement whatsoever on decorative technique in his description of the Ontario Oblique type. The difficult task of effecting an absolute differentiation of incised from linear-stamped sherds probably accounts for this lack of preciseness. The majority of the sherds in the Glen Meyer branch, where the decorative technique is clear, are assignable to the linear stamp technique. Rim shape of the Boys and Barrie sites specimens of this type conforms to those of the Ontario Oblique type as described by MacNeish and as elaborated upon in this report. Therefore, it is maintained that the earlier term 'Ontario Oblique' should be used in preference to the term 'Impressed Oblique' for this pottery type, so that relationships are not warped by non-existent differences expressed in two pottery type names.

Impressed Oblique Bossed (p. 13–14, Plate 1, fig. K)

As was the case with Impressed Oblique, this variety is assignable to the Ontario Oblique pottery type which, in this report, can possess bosses. From the description of the bossing given by Ridley and from the examination of bossed Ontario Oblique rims from Pickering branch sites, the bossing technique appears to be of the Glen Meyer variety in that it is widely spaced as opposed to the closely spaced, punctate-segregated bossing of the early Pickering branch. Rim profiles also conform to those of the Ontario Oblique specimens from the Glen Meyer complex.

Boys Oblique Dentate (p. 12, Plate 1, figs. H and I)

This type possesses a collarless rim profile and two rows of oblique dentate which occur on the exterior rim, either parallel or opposed.

Scugog Oblique Dentate Bossed (p. 14, Plate 1, figs. E and F)

In the description of this variety Ridley states: "Two or three rows of corded stick or dentate stamps are placed above, below or over the line of bosses, sometimes obliquely parallel and on some in herringbone pattern."

The inclusion of two decorative techniques as different as corded stick and dentate stamp under the type name of this variety, I cannot accept. Rim profiles are stated to be slightly channelled, and the bossing is of the typical Pickering branch form. Undoubtedly a number of these rims would possess the dentate stamped obliques (parallel or opposed) on an incipient channelled collar with a row of punctate-segregated bosses, which are so common at the Miller site. It is unfortunate that this particular case of lumping clouds the frequency of an early rim variety of the Pickering branch. The Boys Oblique Dentate type may represent a modification of this early dentate variety which has lost the bossing attribute and the channelled collar.

Barrie Plain (p. 12) and *Boys Bossed Plain* (p. 13, Plate 5, figs. E and F)

Both these varieties may be classed under the Ripley Plain pottery type (MacNeish, 1952: 25–26), as it is used in this report to include the attribute of bossing. The bosses are of the spaced variety and rim profile, and other attributes are the same as the Glen Meyer specimens.

Chevron Castellation (p. 13, Plate 1, fig. C; Plate 2, fig. H; Plate 3, figs. E and I)

This pottery type is self-contradictory. The illustrated rim on Plate 1 is called Scugog Classic Bossed, and those on Plate 3 are called Ontario Horizontal and 'Iroquoian Linear with Chevroned Castellation.' Only the specimen on Plate 2 is listed under its type name. Under the geographical range section it is stated that "the feature is a decoration of Ontario Horizontal or Iroquoian Linear rims" and, as such, it should not be included under the heading of Ceramic Types. The oblique or inverted chevron motif is produced below the castellation by the push-pull technique.

Boys Stamped Crossed (p. 15, Plate 5, fig. G) and *Cross Hatch Incising* (p. 15, Plate 5, fig. D)

These are both minor varieties whose validity as types cannot be accurately tested at this time.

Owascoid Incised Neck (p. 15, Plate 1, fig. J)

This grouping is represented by incising, or incising combined with linear punctate, to produce triangles on the neck area of the vessel. The term 'tentative' is applied to the grouping, and it appears too tentative to apply the qualification 'Owascoid.' Also, it is confusing to insert a category of neck decoration under the caption 'Ceramic Types.'

Owasco Herringbone (p. 15, Plate 1, figs. N and P)

This Owasco pottery type was defined by Ritchie and MacNeish (1949: 110–111), as consisting of "A corded-herringbone decoration on an outflaring rim." It is very similar to the opposed oblique motif variety within the Glen Meyer Oblique type although the latter frequently possesses bossing and a variable rim profile. Also, the ends of the obliques in the Owasco specimens usually touch one another to form a true chevron, whereas the Glen Meyer specimens usually have a gap between the two opposed oblique elements. The Lavanna site, which produced the highest occurrence of the Owasco Herringbone (24.0 per cent) in the Owasco sequence, possessed 100.0 per cent corded body sherds (Ritchie and MacNeish, 1949: 118 and 120, figs. 42 and 43). This fact is at variance with the 6.0 per cent corded body sherds recorded at the Boys site (Ridley, 1958*a*: 4). In this respect, the Glen Meyer Oblique pottery type of the Glen Meyer complex, with its strong tradition of cord impressing, represents a more likely link between the Owasco type and the specimens found at the Boys site. It is, therefore, proposed that these few specimens from the Boys site be regarded as the Glen Meyer Oblique pottery type.

Castle Creek Beaded (p. 15, Plate 2, fig. B)

This Owasco pottery type was described by Ritchie and MacNeish (1949: 114); its diagnostic features consist of a beaded rim with decoration above and below the bead. The Boys site specimen illustrated on Plate 2, figure B, corresponds to the type description only in the most general way.

Owasco Platted (p. 15, Plate 2, fig. F)

The description of this Owasco type given by Ritchie and MacNeish (1949: 111) conforms only slightly to the Boys site specimen illustrated on Plate 2, figure F. The Owasco-like attributes of this variety and the two preceding varieties, which have been attributed to the Owasco aspect, will be considered in the discussion of the relationship of the Pickering and Glen Meyer branches to the Owasco aspect in the concluding chapter.

Jack's Reef Corded Punctate (p. 15)

The motif, technique, and rim shape attributes of the Jack's Reef Corded Punctate type of the Point Peninsula 4 focus (Ritchie and MacNeish, 1949: 107) appear to be assignable to the Glen Meyer Oblique type. The two specimens from the Boys site are inferred to have been derived from this western source.

Jack's Reef Dentate Collar (p. 15, Plate 1, fig. Q)

This Point Peninsula 4 focus type was described by Ritchie and MacNeish (1949: 106). The fact that there was a single specimen at the Boys site and that collared rims and dentate stamping are major attributes of the early Pickering branch raises a question of the advisability of assigning this single specimen to a Middle Woodland pottery type.

Of the new pottery types described by Ridley, three appear to be applicable to the present analysis. These are the Bossed Scugog Punctate Collar, Scugog Classic Bossed, and Boys Oblique Dentate types.

Pickering Branch Rim Sherd Chronology

The general trends of rim sherd varieties in the Pickering branch may be seen in the Frank Bay report, figures 19 to 22 (Ridley, 1954: 45–46). On figure 19, the rim sherds of the Primary Transitional Stratum of that site are illustrated. The major variety is characterized by a straight to slightly outflaring rim profile (figs. a, b, and d) or an incipient channelled collar (fig. f) which possesses a flat lip. Rows of opposed or parallel oblique impressions of a large dentate stamp occur on the exterior rim. The lip and interior of the rim is decorated with oblique impressions of the same tool. One to three rows of exterior bosses are present. The individual bosses may occasionally be separated from one another by an exterior punctate. Incipient rounded or pointed castellations are common attributes. This rim sherd variety, which is 'diagnostic' of the Primary Transitional Stratum, appears in the following Frank Bay Transitional Stratum with two alterations; it now possesses a definite channelled collar and "dentate stamp impressed obliquely on the collars, freely interspersed with linear punctations on the neck" (Ridley, 1954: 45). The channelled collar or concave interior rim profile, with opposed or parallel oblique dentate stamping on the exterior, oblique dentate stamping on the lip and interior, one to three rows of closely spaced exterior bosses frequently separated from one another by exterior punctation, and incipient rounded or pointed castellations, appear to represent the attributes which combine to form one of the major rim sherd varieties of the Pickering branch. This rim variety is early in the sequence and is well represented at the Miller site where a radiocarbon date of A.D. 1125 ± 70 was obtained. The only examples which were available to me came from a stratified Late Woodland site at the mouth of the Pic River, Lake Superior. During this University of Toronto excavation, under the direction of Dr. Emerson, six rims of the variety under consideration were recovered from the major prehistoric stratum of the site which produced Blackduck focus ceramics (Wilford, 1955; MacNeish, 1958). This startling association is strengthened by the appearance of a single Blackduck focus rim sherd in the Frank Bay Transitional Stratum of the Frank Bay site (*see* Figure 20, specimen i). And the same association may also be present in the Primary Transitional Stratum (*see* Figure 19, specimen h). It, therefore, appears that the early period of the Pickering branch is contemporaneous with the Blackduck focus of southeastern Manitoba, northeastern Minnesota, and northwestern Ontario and that occasional contacts between these two Late Woodland complexes took place. A radiocarbon date of A.D. 962 ± 80 (GSC-85) (Wright, 1963) for the Blackduck stratum of the Pic site also dates the early Pickering branch sherds. An example of the rim variety is illustrated on Plate XV, fig. 1.

The 'diagnostic' rim sherd variety of the Frank Bay Transitional Stratum is described as having a channelled collar and constricted neck. Horizontal linear punctation occurs on the collar, and the same technique is applied to the neck in a horizontal or, rarely, a vertical or chevron motif. Below the incipient rounded or pointed castellations, the linear punctation is usually applied vertically. One to three rows of exterior bosses are present below the collar, and individual bosses are separated by exterior punctations. An impressed design usually appears on the flat lip and the interior of the rim (Ridley, 1954: 45). This combination of attributes has been described as Scugog Classic Bossed by Ridley (1958*a*: 14). Ridley notes the presence of the type at the Boys site, Lake Scugog, Frenchman's Bay, Sugar Island, Waterdown, and the Frank Bay site (Ridley, 1958*a*: 14). The type was also present at the Bennett site, and a single example is illustrated in the Uren site report (Wintemberg, 1928: Plate V, figure 14). What appears to be the same pottery type is illustrated in the East Sugar Island report (Ritchie, 1949: Figure 3, nos. c,e,f). Figs. 3 and 4 on Plate XV may fit within the type although the destruction of the neck regions may place them in the Bossed Scugog Punctate Collar type (Ridley, 1958*a*: 11). Fig. 3 was found near Trenton, Ontario, in Northumberland County, and fig. 4 comes from Treasure Island located at the head of the St. Lawrence River to the east of Kingston, Ontario. The latter location is a multi-component, stratified site (BbGc-4) and was located and excavated by Major J. F. Pendergast of Ottawa, who subsequently turned the material over to the National Museum. Figs. 5 to 7 on Plate XV would also be assignable to the Scugog Classic Bossed type except that they lack bossing. Fig. 5 came from the now flooded Ault Park site. Fig. 6 is from the BbGc-4 site on Treasure Island, and fig. 7 comes from the Brophey's Point site (BbGc-1) on Wolfe Island near Kingston, Ontario. This latter site was also located and excavated by Major Pendergast.

Figs. 8 to 11 on Plate XV illustrate other rim sherd varieties from Pickering branch components. Fig. 8, from the BbGc-4 site, possesses linear stamped criss-cross above 'push-pull' horizontals and exterior bosses. This specimen is similar to a rim sherd illustrated by Ridley (1958*a*: 16) on Plate 5, fig. D. Fig. 9 does not fit into any of Ridley's varieties although it is definitely part of the same complex. This rim possesses turtle shell impressed obliques above exterior bosses under which horizontal linear punctate occurs. It was recovered from the BbGc-4 site. Impressing with the suture edge of a turtle shell fragment is a decorative technique which was first recognized by Mr. W. A. Kenyon on a percentage of the Miller site sherds. Fig. 10 is an example of the bossed variety of the Ontario Oblique pottery type from the BbGc-4 site. Figs. 8 to 10 possess slightly everted or straight rim profiles. Finally, fig. 11 possesses a channelled collar with oblique dentate stamp on and below the collar. A line of exterior, spaced bosses occurs at the base of the collar. This rim comes from Simcoe County, Ontario, north of Toronto.

As Ridley (1954; 1958*a*) has demonstrated, two of the major pottery types of the Middle Ontario Iroquois stage evolved out of the Pickering branch. These pottery types are Iroquois Linear and Ontario Horizontal (MacNeish, 1962: 16, 18–19).

The general sequence of events which appears to be involved in the rim sherd development within the Pickering branch is as follows: dentate stamped oblique motifs, one to three rows of closely spaced exterior bosses on an incipient channelled or straight rim profile (Frank Bay, Pic, and Miller sites); linear punctate horizontal motifs, one row of closely spaced exterior bosses on a channelled rim profile (Scugog Classic Bossed and Bossed Scugog Punctate Collar varieties of the Frank Bay site and the Boys site); the same motifs and rim shapes as the preceding but with the push-pull technique replacing linear punctate and the absence of bosses (Barrie, Bennett, and BbGc-4 sites) resulting in the formation of dominant Middle Ontario Iroquois stage rim types. Also, the shift from the push-pull technique to the incising technique is apparent on late Pickering branch sites. The final report on the Miller site and the complete analysis of other sites known in southeastern Ontario will do much to put the rim sherd chronology of the Pickering branch on a more solid basis.

By making certain adjustments to Ridley's pottery types, as suggested earlier in the chapter, it is possible to compare his rim sherd seriations from the Boys and Barrie sites to the Bennett site seriation. The comparisons of the rim sherd type frequencies of the Boys, Barrie, and Bennett sites are presented on Table 12, Part II of the Appendix. By examining this table it may be seen that the Iroquois Linear pottery type accounts for nearly half of the rim sherds at the Bennett and Barrie sites but has a relatively low occurrence at the Boys site. The Ontario Horizontal type shows a steady increase from early to late; and the Bossed Scugog Punctate Collar type has a substantial representation at the Boys site, increases at the Barrie site, and shows a marked decrease at the Bennett site. The Scugog Classic Bossed pottery type is strongly represented at the Boys site but is absent at the Barrie site and is weakly represented at the Bennett site. These frequencies add strong support to Ridley's inference that the chronological sequence of the major pottery types in the Pickering branch ran from Scugog Classic Bossed to Bossed Scugog Punctate Collar to Iroquois Linear to Ontario Horizontal. As such, the frequencies of these four pottery types at a site appear to closely reflect the temporal position of the site in the later portion of the Pickering sequence. Recognition of the chronological position of the earlier Pickering branch sites will have to be based upon the frequency of the heavy dentate stamped, multiple bossed pottery of the Miller site and the Primary Transitional Stratum of the Frank Bay site. Other pottery types at the Bennett, Barrie, and Boys sites which show significant trends are Ontario Oblique, Boys Oblique Dentate, and Glen Meyer Oblique. The Ontario Oblique pottery type, which has a substantial representation at all three sites, shows a gradual decrease in popularity from Boys to Bennett. The Boys Oblique Dentate type, which appears to have been derived from earlier types seen at the Miller site, shows a decrease from Boys to Barrie and is absent at Bennett. Finally, the Glen Meyer Oblique type, which appears to be indicative of Glen Meyer branch influence on the earlier portion of the Pickering sequence, has a low occurrence at the Boys site and is absent from both the Barrie and Bennett sites.

The coefficients of similarity for the three sites under consideration, given on Chart II, Part III of the Appendix, show a fairly close relationship between the Bennett and Barrie sites and a more distant and equal degree of relationship between the Boys site and the Bennett and Barrie sites.

Data, other than that on rim sherds, are very sparse for the Pickering branch. This situation should be rectified in the near future with the publications on the Miller and Bennett sites. At the present time, however, a certain amount of data can be obtained from Ridley's report of the Boys site. In addition, Kenyon has kindly provided information from his analysis of the Miller site, and comparative data are available from the preliminary study of the Bennett site.

The only published information on body sherd treatment for the Pickering branch comes from the Boys site (Ridley, 1958*a*: 4). Comparative figures are available, however, from the Miller and Bennett sites and can be seen on Table 13, Part II of the Appendix. The number of specimens used in the Miller and Boys body sherd seriations is not available, and the Bennett seriation is based upon a random sample of 156 sherds. Also, the thong-wrapped category in Ridley's report is equated with the ribbed paddle technique of this report. The cord category of Table 13 is referred to as 'fabric-impressed' for the Boys site, 'cord-wrapped paddle' for the Miller site, and 'smoothed-over cord' for the Bennett site. Despite these unavoidable inconsistencies, Table 13 is indicative of certain fluctuations of body sherd treatment in the Pickering branch. The ribbed paddle technique is absent at the Miller site but has an appreciable occurrence at the Boys and Bennett sites. This technique is one of the dominant varieties in the succeeding Middle Ontario Iroquois stage. The corded category is difficult to interpret in light of the different terminologies of the three researchers involved. A gradual decrease is noted with the check stamp technique which becomes one of the dominant varieties of the Middle Ontario Iroquois stage. The scarified technique only appears at the Bennett site and may be indicative of late Pickering branch contacts with the Glen Meyer branch. Thus, it appears that of the three dominant surface treatment techniques of the Middle Ontario Iroquois stage, the ribbed paddle and check stamp techniques come from the Pickering branch, and the scarified technique comes from the Glen Meyer branch.

Information on pipes from the Boys site is derived from six specimens. Two of the specimens, one in clay and the other in steatite, are rectangular in cross-section and markedly obtuse. Two pipe bowl fragments possessed a punctate decoration and two (one in steatite) were plain. In general, the pipes from the Miller and Bennett sites are similar, being markedly obtuse (elbow pipe form) and either plain or with a simple punctated or incised design. Stems are more often faceted or flattened than rounded. It would appear that the pipes from the Pickering and Glen Meyer branches are very similar and have in common the following traits: crudity, elbow form, faceted stems, and plain or simple punctated and incised motifs.

Pottery gaming discs have been recovered from the Miller site (Kenyon, 1960: 65) and were present at the Bennett site.

Projectile points from the Boys and Bennett sites are usually broad triangular points, although side-notched and stemmed specimens do occur. Other lithic artifacts found at the Boys site consisted of a straight-based biface blade, a side-scraper, and a stone chisel. The Bennett site produced ovate biface blades, side-scrapers and end-scrapers, adzes, chisels, anvil stones, abraders, hammerstones, metates, manos, pestles, and drills.

The bone industry from the Boys site was limited to six bone awls. At the Bennett site, awls, bodkins, cup-and-pin game deer phalanges, antler flakers, projectile points, bird bone beads, beaver incisor chisels, antler handles, a bone chisel, and a bracelet were recovered.

The preceding, and necessarily spotty, examination of the Pickering branch has attempted to outline a lengthy sequence of cultural development in southeastern Ontario. This development is recognized as early as A.D. 962 (GSC-85) at the Pic site on Lake Superior where some early Pickering branch rim sherds were found in direct association with the major Blackduck focus component. The contemporaniety of the Blackduck focus of northwestern Ontario and the early Pickering branch is also supported by the findings at the Frank Bay site. Here, however, the association has been reversed: the early Pickering branch is the major component, and the Blackduck focus has a few rim sherds. The next pertinent radiocarbon date comes from the palisaded Miller site and gave a reading of A.D. 1125 (S-108). And located at the end of the Pickering branch development and the termination of the Early Ontario Iroquois stage is the Bennett site with its radiocarbon date of A.D. 1260 (GSC-143). Through this time span of over 300 years, sequential changes within the pottery types have taken place. This sequence is best illustrated at the Frank Bay site, extending from the Primary Transitional Stratum to the Barrie-Uren Stratum. Evidence of palisade villages and large communal house structures first appears at the Miller site. Corn agriculture, with a heavy reliance upon fishing, appears to be the general subsistence pattern throughout much of the Pickering sequence. The bundle burials (single and multiple) of the Miller and Bennett sites may represent the beginning of the ossuary burial practice of the Ontario Iroquois. With the increase in data on the Pickering branch a great deal of information pertinent to the later stages of the Ontario Iroquois Tradition is anticipated.

SUMMARY

The Early Ontario Iroquois stage has been based upon the study of two independent cultural developments taking place simultaneously in southwestern and southeastern Ontario. The sequence of events involved in the Glen Meyer branch of southwestern Ontario has been traced by means of typological and modal seriation used in conjunction with the direct historical approach. In contrast, the equivalent events in the Pickering branch of southeastern Ontario have been strongly supported by three radiocarbon dates and the complete stratigraphic sequence at the Frank Bay site. This was extremely fortunate since the available typological and modal information on the Pickering branch is sparse and, temporarily, incomplete. Despite the somewhat different nature of the data used to establish the two chronologies, both sequences are based upon a considerable amount of evidence. With the additions of settlement pattern data and radiocarbon dates to the Glen Meyer branch and greater descriptive analysis of the Pickering branch artifacts, the Early Ontario Iroquois stage of the Ontario Iroquois Tradition should be firmly established.

A number of general similarities can be seen between the two branches. Both peoples occupied large palisaded villages, generally located on hills or flanked by ravines and quite distant from navigable bodies of water. Both followed a subsistence pattern based upon corn agriculture and fishing. Burial practices, as presently known within the two branches, are characterized by secondary bundle burials in and around the village, although flexed burials appear late in the Pickering branch. The general character of the material culture of the Glen Meyer and Pickering branches is the same. For example, pottery fragments represent the dominant artifactual remains, pipes are of a similar variety and are crude and scarce, and both the lithic and bone industries are weak. In addition, the chronological sequences of the two branches trend toward the late Iroquois culture pattern.

Although a number of general characteristics are held in common by both the Glen Meyer and Pickering branches, there are also a number of differentiating characteristics which are both general and specific. The sequence of culture change seen within the Glen Meyer branch appears to be more gradual than that of the Pickering branch. Indeed, the Glen Meyer development seems to be quite staid in contrast to the rapid changes apparent in the Pickering branch. This impression is reflected in the large, tightly-grouped Glen Meyer villages as opposed to the widely scattered villages and numerous camp-sites of the Pickering branch. Although certain general attributes of the ceramic complex, such as vessel form, manufacturing technique, area of decoration, and bossing, are held in common, the vast majority of the specific attributes allow for a clear separation of the Glen Meyer and Pickering branches. This is probably best seen on Chart III, Part III of the Appendix, where the coefficients of similarity for the rim sherd types of four Glen Meyer sites and three Pickering sites are given. The low coefficients between the Glen Meyer and Pickering sites reflect the error of Lee's statement that the two ceramic complexes are identical (Ridley, 1958*a*: 22). Marked differences between the two branches can also be seen in the techniques of body sherd treatment with the ribbed paddle and checked stamp techniques characteristic of the Pickering branch and the scarified technique largely restricted to the Glen Meyer branch. To date, certain very specific traits such as pottery gaming discs and cup-and-pin game deer phalanges are only found in the Pickering branch, whereas a trait like the slate pebble pendant is only found in the Glen Meyer branch.

The Early Ontario Iroquois stage was terminated with the conquest and absorption of the Glen Meyer branch by the Pickering branch. At the time the western expansion and colonization of southwestern Ontario and New York were taking place, the unbroken cultural continuum of the Pickering branch in southeastern Ontario evolved into the Middle Ontario Iroquois stage. As such, the Middle Ontario Iroquois stage represents a cultural horizon in the Ontario Iroquois Tradition, realized both by the continued cultural development of the Pickering branch in southeastern Ontario and by the Pickering branch's sudden expansion to the southwest with the resultant absorption of the Glen Meyer branch. Thus, at approximately A.D. 1300, a broad, homogeneous culture horizon, occupying most of Southern Ontario and a large portion of the adjacent southwestern New York State, was in existence. The southwestern portion of this horizon, however, is characterized by a large number of cultural survivals from the Glen Meyer branch which are largely absent in the northeastern area of the horizon. This horizon period of the Ontario Iroquois Tradition is called the Middle Ontario Iroquois stage and may be divided into two substages called Uren (early) and Middleport (late). The events seen within the Middle Ontario Iroquois stage are presented in the following chapter.

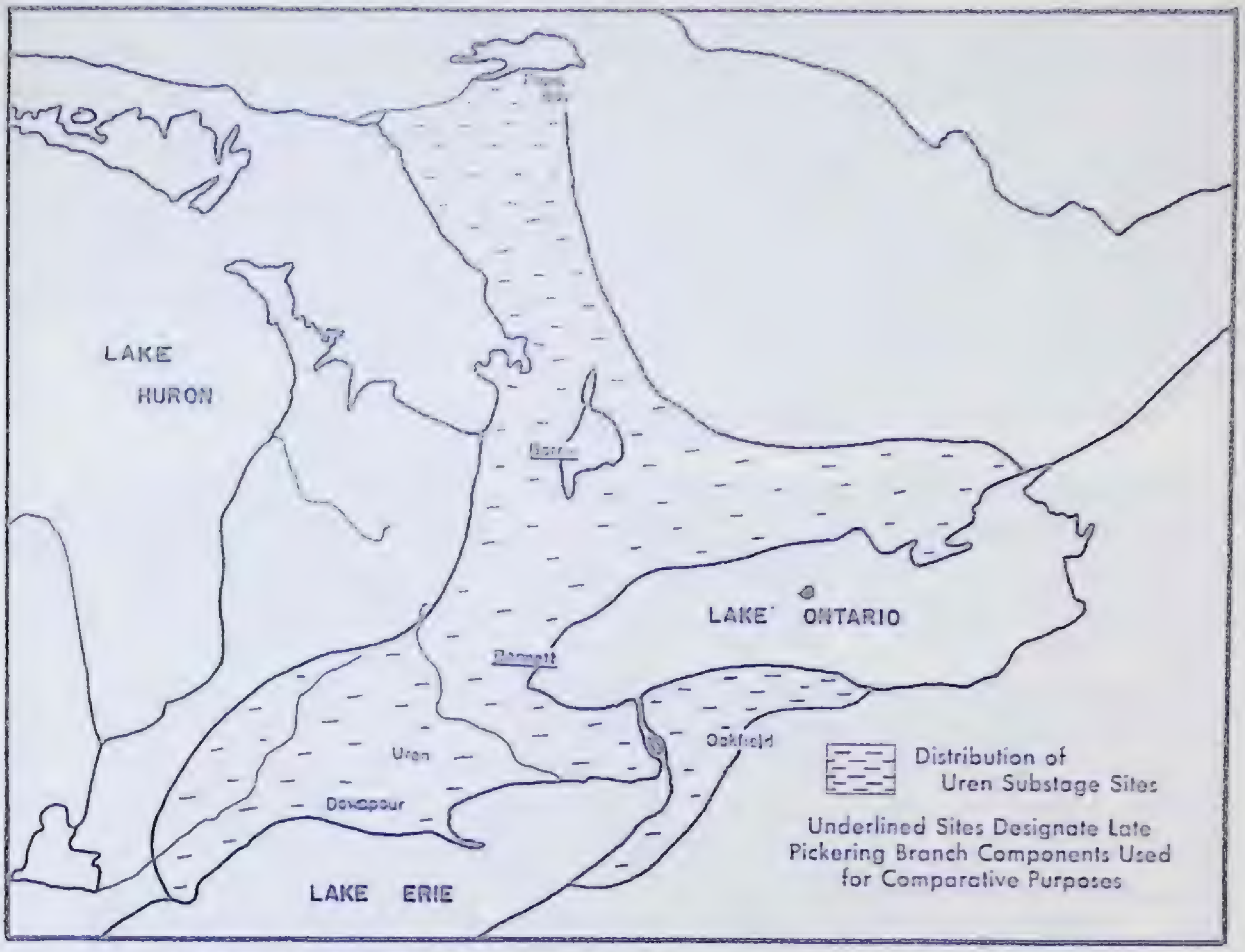
CHAPTER FOUR

The Middle Ontario Iroquois Stage

The Cultural Horizon of the Ontario Iroquois Tradition which was in Existence from A.D. 1300 to A.D. 1400 and from Which Base the Historic Huron, Petun, Neutral, and Erie Diverged

The Middle Ontario Iroquois stage, as has been stated earlier, is a product of the uninterrupted cultural development of the Pickering branch and the conquest and absorption of the Glen Meyer branch by the Pickering branch. There are two separable, but chronologically sequential, substages involved in the stage.

The first of these is the Uren substage, named after a site in southwestern Ontario reported upon by W.J. Wintemberg (1928). From present evidence it would appear that this substage began around A.D. 1300 and lasted for approximately fifty years. The complex is characterized by the dominance of the Iroquois Linear, Ontario Horizontal, and Ontario Oblique pottery types, a poorly developed pipe assemblage comparable to the Early Ontario Iroquois stage, and certain specific traits such as gaming discs and cup-and-pin game deer phalanges. In this respect, Uren substage sites are very similar to late Pickering branch sites. It was seen, however, that the Uren sites in southwestern Ontario and New York contained an abundance of Glen Meyer branch survivals, thereby allowing an effective separation. At the same time, the steady decrease of the bossing attribute on rim sherds in both southeastern and southwestern Ontario appeared to offer a good means of separating the later Pickering branch sites of the Early Ontario Iroquois stage from the Uren sites of the Middle Ontario Iroquois stage. It was, therefore, decided that comparable sites producing more than 10 per cent bossed pottery be assigned to the late Pickering branch and that sites producing less than 10 per cent bossed pottery be assigned to the Uren substage. While such a technique for separating late Pickering branch components from Uren components is not entirely arbitrary, it is artificial. It may be justifiably argued that, by such a procedure, the cultural continuum of the Pickering branch is being interfered with and artificially disrupted. This is so, and the problem is how to best present the data on this critical period in the Ontario Iroquois Tradition and still maintain a clarity of statement. If the continuity of the Pickering branch were emphasized, the important contribution of the Glen Meyer branch could only be minimized. In the final analysis, it was decided that the events which resulted in a cultural horizon, covering a large area of Southern Ontario and southwestern New York, warranted the designation 'stage' and that the disruptive effect of the Middle Ontario Iroquois stage on the Pickering branch continuum was more than compensated for by the interpretational value of the horizon. At the same time, the cultural continuum of the Pickering branch into the Middle Ontario Iroquois stage is not to be ignored. For this reason,


LAKE HURON
Barrie
LAKE ONTARIO
Bennett
Uren
Oakfield
LAKE ERIE
Distribution of Uren Substage Sites
Underlined Sites Designate Late Pickering Branch Components Used for Comparative Purposes

MAP 2 The Middle Ontario Iroquois stage, Uren substage

the two late Pickering branch sites of Barrie and Bennett are used in the rim sherd comparisons of this section and are also placed on the Middle Ontario Iroquois stage map of the Uren substage. No doubt confusion has been introduced by the preceding interplay between elements of the horizon and the tradition. The data, however, will not support a simplistic interpretation.

The final substage of the Middle Ontario Iroquois stage is called Middleport after a site in southwestern Ontario reported upon by Wintemberg (1948). The Middleport complex represents a development out of the preceding Uren substage with one important exception—the fully developed and elaborate pipe complex, which is characteristic of all the later Ontario Iroquois developments, is present for the first time. Any attempt to derive the Middleport pipes from antecedents in the Uren substage would appear to be fruitless. Uren pipes, like those in the Pickering and Glen Meyer branches of the Early Ontario Iroquois stage, are scarce and crude. The Middleport pipes, however, are abundant, and a truly aesthetic control has been achieved over the plastic media. Yet the time span for the entire Middle Ontario Iroquois stage does not appear to exceed 100 years, and on seriational grounds the Middleport site is probably less than 75 years later than the Uren site. Also, everything else in the Middleport substage is consistent with a development out of the Uren substage with the single exception of the pipe complex. It would therefore appear that the pipe complex of the Middleport substage was introduced from outside the Ontario Iroquois Tradition. The only apparent source for such a pipe complex would be in the tradition to the northeast which terminated in the Onondaga, Oneida, and Mohawk (Ritchie, 1952; Ritchie, Lenig, Miller, 1953). Other features characteristic of the Middleport substage are the dominance of the Middleport Oblique, Lawson Incised, and Ontario Horizontal pottery types, and lithic and bone assemblages similar to Uren. The Middleport substage gradually fades into the Late Ontario Iroquois stage as the four historic tribes diverge from their common base. By A.D. 1400, the two diverging complexes, one to terminate in the Huron and Petun and the other in the Neutral and Erie, can be differentiated from one another and thus initiate the Late Ontario Iroquois stage.

THE UREN SUBSTAGE

Uren sites, exhibiting a remarkable degree of homogeneity, extend as far west as Chatham, Ontario (Lee, 1951: 47), east to Kingston at the head of the St. Lawrence River (BbGc-4), north to Lake Nipissing (Ridley, 1954: 45–47), and south into southwestern New York (Guthe, 1958: 64; White, 1961*a*: 124–25). Despite the large area occupied during the Uren substage, there are relatively few excavated sites from which comparisons can be drawn. The available evidence suggests that during this substage widely scattered small camp-sites and the occasional large village site represented the general settlement pattern. Such a settlement pattern reflects the Pickering branch antecedents of the Uren substage as opposed to the concentrated large village sites of the Glen Meyer branch and the Late Ontario Iroquois stage. Also, coupled with the inference that the Uren substage only lasted for approximately fifty years, it is not too surprising that more large village sites have been reported upon.

Four sites attributable to the Uren substage of the Middle Ontario Iroquois stage are used for comparative purposes. These are the Uren site near Brantford in southwestern Ontario, the Oakfield site east of Niagara Falls in southwestern New York, the Elliott site east of Toronto, and the Downpour site southwest of the Uren site near the north shore of Lake Erie. The amount and type of information available for these four sites are quite variable. For the Uren site there is a complete site and artifact description (Wintemberg, 1928) and rim sherd seriation (MacNeish, 1952). For the Oakfield site there is a site description and rim sherd seriation (White, 1961*a*). Though there are available complete site and artifact descriptions and rim sherd seriation for the Elliott site, they are of a preliminary nature (Donaldson, 1962). With regard to this last site, it was necessary to make some adjustments to the rim sherd seriation to allow comparisons with the other three sites. The Downpour site only possesses a rim sherd seriation. In addition to the preceding Uren sites, two late Pickering branch sites (Bennett and Barrie) have been used in the comparative analysis to demonstrate the continuities from the Early Ontario Iroquois stage to the Middle Ontario Iroquois stage.

The Uren site is in gently rolling country and borders the steep banks of a small stream. Scattered middens and pits occur over an area of approximately fifteen acres. No evidence of a palisade or house structure was encountered. No burials were located during Wintemberg's excavations, although several were exposed by the plough on the site and adjacent areas. A small quantity of fragmented human remains, however, was recovered from the middens; this may well represent the first evidence of cannibalism in the Ontario Iroquois Tradition. Carbonized corn and a single sunflower seed represented the only evidence of domesticated foodstuffs. Faunal remains consisted of the usual highly fragmented remnants of all available species.

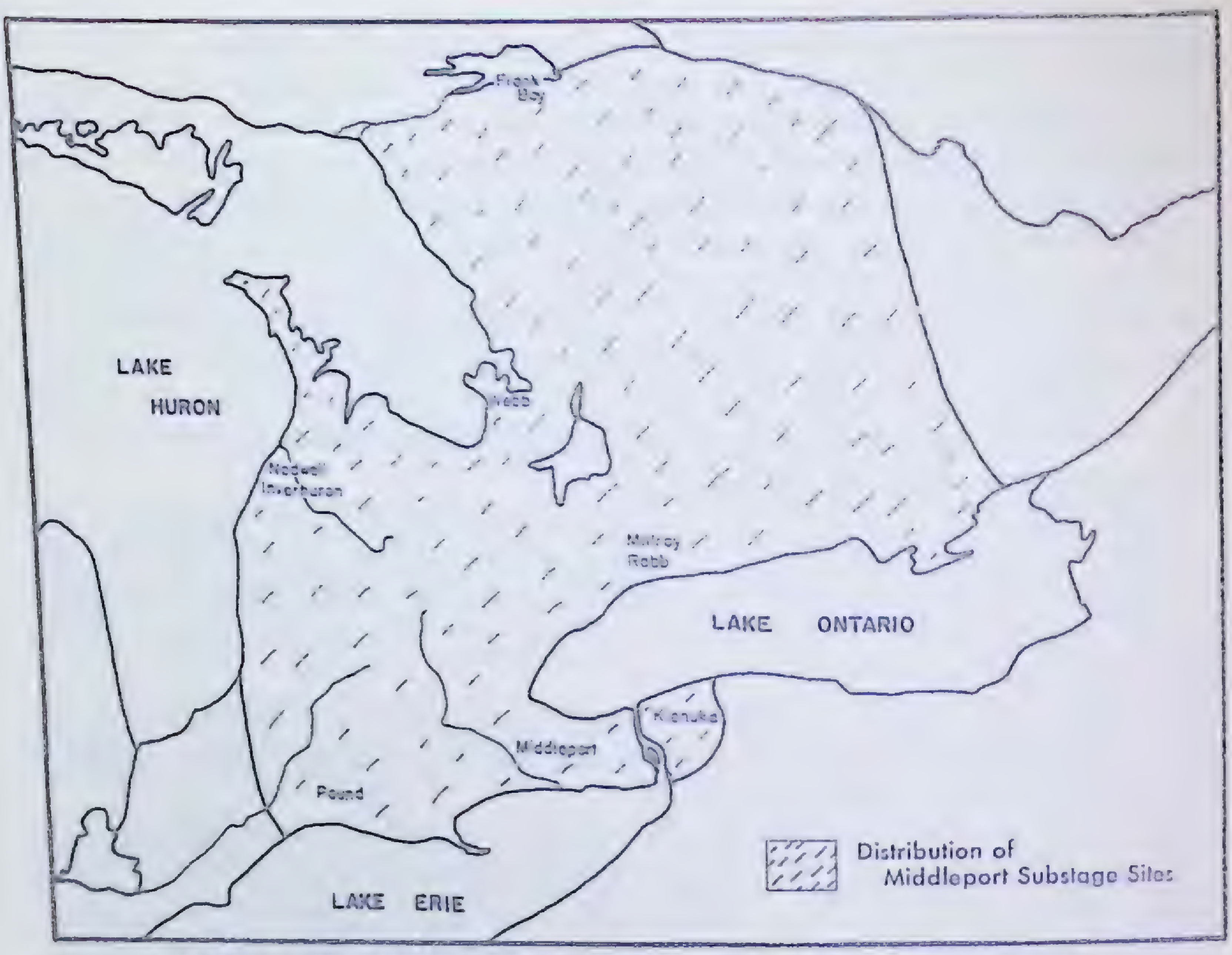
The Oakfield site is also located in gently rolling country adjacent to a small stream. Here, however, the five-acre site is surrounded by an earthwork. Longhouse structures have been exposed at the site, but the data are unpublished as yet (Dr. Marian White: paper given at the Northeastern Anthropological Conference, April 1963, Ithaca). Midden deposits have not been located on the site, although pits are present. Hearsay evidence suggests the existence of a possible ossuary near the site. The references, however, are too tenuous to be given much weight.

The Elliott site occurs in rolling country on the western slope of a hill bordering a small tributary. Both middens and pits are present on the site. Carbonized corn represented the only evidence of domesticated foodstuffs. Faunal remains consisted predominantly of fish. No settlement pattern or burial data are available.

The Downpour site is located in rolling country near a small tributary. No data are available other than the small amount of artifactual material recovered from the middens.

The comparisons of the rim sherd seriations for the four Uren substage sites and the two late Pickering branch sites can be seen on Table 14, Part II of the Appendix. Samples from the various sites were quite variable. For example, the low sample of rim sherds from the Downpour site limits the site's use as an effective comparative unit. Also, the samples from the Elliott and Barrie sites are weak but probably expressive of the ceramic trends within the sites. All the seriations were based upon rim sherds with the exception of the Oakfield site which was based upon entire vessels. Three pottery types dominate the pottery type seriations of all the sites. These are Iroquois Linear, Ontario Horizontal, the Ontario Oblique, and their combined occurrence usually accounts for more than half the rim sherds on both the Uren sites and the late Pickering branch sites. As has been stated earlier, the frequency of bossing has been used as a means of separating the Uren components from the late Pickering branch components. The Ripley Plain pottery type is also consistently present, although generally it has a low representation.

The coefficients of similarity between the four Uren substage sites and the two late Pickering branch sites are given on Chart IV, Part III of the Appendix. With the exception of the Elliott site, all the Uren sites generally have a lower coefficient of similarity with the late Pickering branch sites than they do with each other. As the sole Uren substage representative from southeastern Ontario, the Elliott site reflects its Pickering branch antecedents more clearly than the other Uren sites from southwestern Ontario and New York by its high coefficients of relationship with the Bennett and Barrie sites. The Uren site has its closest relationship with the Downpour site, although the significance of such a coefficient is weakened by the low sherd sample from the Downpour site. Relationships between the Uren site and the Oakfield and Elliott sites are about equal, and the coefficients indicate the degree of homogeneity to be found on widely scattered sites of the Uren substage.



MAP 3 The Middle Ontario Iroquois stage, Middleport substage

The body sherds from the Uren sites present important evidence on the fusion of the Pickering and Glen Meyer branches. In Wintemberg's discussion of the body sherds from the Uren site (1928: 15–22) he states that the dominant surface treatment techniques were scarification, ribbed paddle impressing, and checked stamp. The two latter techniques, as can be seen by referring to Tables 7 and 13, Part II of the Appendix, are characteristic of the Pickering branch but not of the Glen Meyer branch. With the scarification technique the case is directly reversed. A few examples of fabric impressed or cord malleated body sherds were present at the Uren site, and plain sherds were in the minority. At the Oakfield site (White, 1961*a*: 87), however, "there were 100 smooth body sherds to 260 roughened bodies, most of which were cord-marked."

A ceramic trait which comes into the Uren substage from the Pickering branch is the pottery gaming disc (perforated and unperforated). Gaming discs have been found at the Miller site (Kenyon, 1960: 65), the Bennett site, and were present at the Uren site (Wintemberg, 1928: 28 and 97, Plate XXIII figs. 1–4).

Another ceramic trait which comes directly to the Uren substage from the late Pickering branch is the chevron castellation (Ridley, 1958*a*: 13). This castellation type (Plate XVI, fig. 1) is dominant at the late Pickering branch Bennett site. Also the punctate face motif below the castellation, though present in the Glen Meyer branch, actually is far more prevalent on late Pickering branch sites.

In addition to the preceding traits, most of the ceramic complex of the Uren substage comes directly from the late Pickering branch.

An important late Pickering branch contribution to the Uren substage is the cup-and-pin game deer phalange (Plate XVI, fig. 10). This artifact, which is prevalent throughout the Middle Ontario Iroquois stage and the earlier portion of the Late Ontario Iroquois stage, was completely absent from the Glen Meyer branch. The polished bone bodkin also appears to have come to the Uren substage from the late Pickering branch.

Glen Meyer branch contributions to the Uren substage consist of pottery types such as Glen Meyer Oblique, Stafford Stamped, Middleport Criss-Cross, and Glen Meyer Necked, the scarified vessel surface treatment, the Glen Meyer end scraper, the spokeshave scraper, and the slate pebble pendant.

The pipe complex, as seen at the Uren site, could have been derived from either or both branches of the Early Ontario Iroquois stage.

A large number of traits found in the Uren substage were held in common by the Glen Meyer and Pickering branches. These are as follows: broad triangular projectile points; bi-pitted anvilstones; polished adzes; tubular bone beads; antler flakers; drill varieties; whetstones; and splinter bone awls.

A single radiocarbon date is available for a Uren substage site. This reading was obtained from the Oakfield site where a measurement of 420 ± 150 B.P. was obtained (White, 1958). If the standard deviation of 150 years is added to the date, it would place the occupation of the Oakfield site at approximately A.D. 1380. Such a date would parallel the reading of A.D. 1398 ± 150 given for the late Chance Horizon Getman site (Ritchie, 1961*a*: 34). Early in the Chance Horizon of the Mohawk Valley, however, the Oak Hill site produced a substantial amount of the Iroquois Linear pottery type (Ritchie, 1952: 18–19). Since this pottery type is dominant on Uren substage sites, it is felt that the earliest reading of the Oakfield date A.D. 1380 is still too late and that a date of A.D. 1300 would be more accurate. This estimate is supported by the terminal Pickering branch date of A.D. 1260 at the Bennett site.

THE MIDDLEPORT SUBSTAGE

The final substage of the Middle Ontario Iroquois stage, which is called Middleport, evolves directly out of the Uren substage. As can be seen on Map 3, the area occupied during the Middleport substage exceeds that of the preceding Uren substage. Though expansion to the north and northeast has taken place during Middleport times, there also appears to have been a contraction from southwestern New York and the extreme southwestern Ontario. The same settlement pattern of the Uren substage, consisting of numerous small camp-sites and occasional large village sites, characterizes the Middleport substage. However, one important change has taken place. The frequency of camp-sites and village sites is much higher for the Middleport substage than for the preceding Uren substage. In short, there definitely appears to have been a rapid population increase, perhaps associated with a greater reliance upon agriculture. The degree of homogeneity of sites is greater during the Middleport substage than the preceding Uren substage. This homogeneous base survived for roughly fifty years before regional differentiation introduced the Late Ontario Iroquois stage.

Seven sites attributable to the Middleport substage are available for comparative purposes. These are the Middleport and Pound sites of the southern portion of southwestern Ontario, the Inverhuron and Nodwell sites of the Bruce Peninsula in the northern portion of southwestern Ontario, the Robb and Millroy sites of the Toronto area, and the Kienuka site of southwestern New York. For the Middleport site there is a complete site and artifact description (Wintemberg, 1948) and a rim sherd seriation (MacNeish, 1952). The Pound site has only a rim sherd seriation (MacNeish, 1952). Complete site and artifact description and rim sherd seriations are available for the Inverhuron site (Kenyon, 1959*b*), the Nodwell site (Wright, 1960; unpub. data), the Robb site (Wright, 1960; Donaldson, 1962), and the Millroy site (Wright, 1960; Donaldson, 1962). And a site description and rim sherd seriation, as well as other descriptive data, are available for the Kienuka site (White, 1961*a*). Additional information is present on the Webb site (Harper, 1952) in Huronia and the Webb Stratum of the Frank Bay site on Lake Nipissing (Ridley, 1954). There is also a substantial amount of Middleport material, from widely separated areas in Southern Ontario, in the National Museum of Canada collections.

The Middleport site is located along the steep banks of the Grand River near the town of Brantford. There is some evidence that the site might have been palisaded. Midden deposits, including hillside dumps, were found over an area of more than five acres. The site was stratified, although the thin, earlier stratum was non-Iroquoian, and there is little danger of cultural mixture. An ossuary was located adjacent to the site prior to Wintemberg's excavation and consisted of a circular pit 8 to 9 feet in diameter containing a bone deposit 2.5 feet deep. One cremated burial, as well as a large biface blade, the tip of a point, a cylindrical bone bead, and four discoidal shell beads, was found in the ossuary. Wintemberg raises the possibility that the ossuary is attributable to the earlier occupants of the site (1928:39), but the available evidence suggests that it is assignable to the Middleport occupants. In addition, two fragments of human bone were found in the refuse; these may be indicative of cannibalism. Carbonized corn kernels were the only evidence of domesticated plants to be found. Dog remains, as burials or in the refuse deposits, were absent.

No published information is available on the site description or artifact description of the Pound site.

The Inverhuron site is located near the mouth of a small stream on the shore of Lake Huron. A number of thin midden deposits were exposed by wind action. No evidence of house structures or burials was found, and the site was certainly not located with defence in mind. The purpose of the occupation, however, was clearly evident in the faunal remains which consisted predominantly of fish. Dog bones were also found in the refuse deposits.

The Nodwell site is located on a flat plain bordering the steep ravine of a small stream. A number of large middens covered an area of less than four acres. Two burials were reported to be uncovered during the excavation of a railway along the northern edge of the site. Both carbonized corn kernels and the usual wide range of faunal remains were found.

The Robb site covers approximately three acres of a flat plateau bordering a small tributary of the Rouge River. Post moulds have been exposed, but no meaningful pattern was discovered. Carbonized corn and the usual mixed faunal remains were found. Just east of the site the Fairty ossuary was excavated by the Ontario Archaeological Society; it is probably associated with the village site. The ossuary was 11 feet in diameter, 6 feet deep, and contained over 300 individuals. A scraper and a discoidal shell bead represented the only artifacts found in the pit. The complete osteological report on this feature was given by Dr. J. E. Anderson.[1]

The Millroy site occupies a knoll bordered on two sides by stream-cut ravines.

The Kienuka site is a multiple component site with the Middleport occupation representing the sole prehistoric component. Since the site occupies an elevated area beside a small creek, it may have been chosen for defensive purposes. Over five acres have produced occupational debris.

Rim sherd comparisons from the seven sites are given on Table 15, Part II of the Appendix. Sherd samples from all the sites were adequate with the possible exception of the Nodwell site.

> "It has been suggested by multiple ceramic analysis of single Middleport Horizon components that a sample as low as fifty rim sherds may afford type frequencies adequate for valid spatial and temporal inferences. The proposed validity of such small samples appears to stem from the few ceramic types that are present on these early sites as opposed to the more complex ceramic elaboration and cosmopolitanism of later Iroquois sites . . ." (Wright, 1960: 1).

Three pottery types dominate the Middleport substage; these are Middleport Oblique, Lawson Incised, and Ontario Horizontal. The combined percentages of these three pottery types usually account for more than half the total rim sherds from Middleport sites. And the combined high frequency of the three types may be regarded as one of the diagnostics of the Middleport substage and not as just the dominant position of any one of the three types. The Middleport Oblique type is most characteristic of the substage, being largely absent from the Uren substage and surviving for only a short while into the Late Ontario Iroquois stage. Ontario Horizontal, which was one of the dominant types in the Uren substage as well, barely survives into the Late Ontario Iroquois stage. Lawson Incised, on the other hand, was rare during the Uren substage but shows a marked increase during the Middleport substage and achieves its dominant position during the Late Ontario Iroquois stage.

The coefficients of similarity between the seven Middleport substage sites are given on Chart V, Part III of the Appendix. In general, the Middleport sites of the Bruce Peninsula (Nodwell and Inverhuron) and the Toronto area (Robb and Millroy) possess the closest degrees of relationship as opposed to sites in the southern portion of southwestern Ontario and southwestern New York. This may indicate that the colonization of the northern portion of southwestern Ontario stemmed from a movement out of the east rather than the south. In the southern portion of southwestern Ontario the Middleport and Pound sites appear to be fairly closely related. The Kienuka site of southwestern New York, however, possesses relatively low coefficients of similarity with the Ontario sites. An impression of the relatively homogeneous nature of the Middleport substage can be seen in the coefficients of these seven widely scattered sites.

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[1] Anderson, J. E. "The People of Fairty." Paper No. 2, Contributions to Anthropology 1961—62, Pt. I, Bull. 193, p. 28—129.

It was not possible to completely assess the surface treatment techniques of the body sherds from the Middleport site (Wintemberg, 1948: 11–14). The following data were obtained: "over" 1,700 ribbed paddle impressed sherds; "about" 685 ribbed paddle impressed body sherds with superimposed scarification; 108 "cord-roughened" sherds; and 9 check stamped sherds. It is further stated that "eight hundred and eighty fragments being smooth, thirteen uneven, and one thousand rough"; but from the context, I am uncertain whether 'smooth' means 'plain' and if 'uneven' and 'rough' can be equated with 'scarified.' The dominant position of the ribbed paddle technique of body surface treatment at the Middleport site appears to be a general feature of the Middleport substage and represents the continuation of a trend seen in the Uren substage. Also, it is stated that "only" nine Middleport site body sherds were check stamped "as compared with the many pieces from the Uren site," thus suggesting that this technique of body surface treatment has decreased in popularity by the Middleport substage.

Castellations show an increase in popularity at the Middleport site with 192 vessels or 10.5 per cent of the total vessel count possessing them as opposed to their presence on 80 vessels or 7.5 per cent of the total vessel count at the Uren site. Although a separation was not made at the Uren site, the Middleport site produced 128 vessels with incipient pointed castellations and only 16 vessels with incipient rounded castellations. A single example of the multiple pointed or scalloped castellation variety came from both the Uren and Middleport sites. A large number of the castellations from both these sites had an open, everted chevron motif below the peak. The open area directly below the elevated lip of the vessel frequently contains a punctated face motif or vertical bars. The everted chevron design definitely comes out of the late Pickering branch where it is a decorative attribute of the Ontario Horizontal and Iroquois Linear pottery types (Ridley, 1958*a*: 13). The punctated face also appears to have been largely derived from the Pickering branch. A single nubbin variety castellation on a Lalonde High Collar rim is illustrated from the Middleport site (Wintemberg, 1948; 54, Plate VI, fig. 2).

The pottery gaming disc, unperforated and perforated, continues from Uren into Middleport. In addition, crude cylindrical pottery beads appeared at the Middleport site and were also present at the Miller site,[1] suggesting that the trait may have been originally derived from the Pickering branch.

Pipes, for the first time in the Ontario Iroquois Tradition, appear as a major cultural element. The bulk of the pipes are manufactured from clay, but a few stone specimens are present. Some of the earlier forms appear to persist, but, for the most part, new pipe varieties are dominant in the Middleport substage. Most popular of these new varieties is the broad, conical right-angled pipe with fine incised lines encircling the bowl and with a line of fine circular punctates below the horizontals. A series of finely incised opposed obliques is also a popular decorative motif on the conical pipe bowl. The Vasiform pipe is also found at this time. A pipe variety which was popular at the Middleport site but does not appear to be present on the northern and eastern Middleport sites consists of a flattened barrel-shaped bowl covered with a finely incised, complex-zoned motif. Pipe stem configuration undergoes marked changes in the Middleport substage. Stems are longer and are usually circular in cross-section, as opposed to the short stems with faceted cross-section of the earlier period. As was stated earlier, the pipe complex of the Middleport substage suddenly appears as an elaborate and completely integrated complex. There is no evidence of a development out of the preceding Uren pipes which reflects their Early Ontario Iroquois stage antecedents. It has been suggested that the pipe complex of the Middleport substage was adopted from the archaeological complexes to the northeast which gave rise to the Onondaga, Oneida, and Mohawk. That the pipe complex was adopted suddenly and completely is supported by its homogeneity in the Middleport substage, by the absence of a transitional developmental stage of the pipe complex, and by the evidence that the remainder of the Middleport archaeological assemblage is demonstrably evolved directly out of the preceding Uren substage.

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[1] This information was given to me by L. A. Kenyon.

Rim sherd types of the Middleport substage clearly reflect a continuity from the Uren substage. The Ontario Horizontal type represents one of the dominant types throughout both the Uren and Middleport substages. The major variety of the Middleport Oblique pottery type appears to have evolved out of the Ontario Horizontal type. Other varieties, such as Iroquois Linear, Middleport Criss-cross, Ontario Oblique, and Ripley Plain, also emphasize the continuity between the two substages of the Middle Ontario Iroquois stage.

Lithic traits which were present during the Uren substage and also appear during the Middleport substage are as follows: large triangular projectile points; metates; manos; anvil stones; adzes; whetstones; side, end, and spokeshave scrapers; slate pebble pendants; triangular and simple drills.

Lithic traits which are present during the Middleport substage but are largely absent in the Uren substage consist of the following: netsinkers; sinew stones; biface blades; and the marked increase of the side-notched triangular projectile point. This latter trait may be regarded as one of the quantitative diagnostics of the Middleport substage.

Bone traits which appear in both the Uren and Middleport substages are as follows: conical antler projectile points; unilaterally barbed harpoons; worked beaver incisors; cylindrical antler flakers; netting needles; cylindrical beads; wristlets; whistles; bone bodkin; human skull gorget; and cup-and-pin game deer phalanges. Of the preceding, the netting needle, the cylindrical antler flaker, and the cup-and-pin game deer phalange (Plate XVI, figs. 8–10) appear to be most characteristic of the Middleport substage.

Bone traits apparently absent from the Uren substage but present during the Middleport substage are the antler chisel and the bear canine pendant.

There are no radiocarbon dates for the Middleport substage,[1] and its temporal placement in the Ontario Iroquois Tradition must be based upon seriational evidence. This placement, in my estimation would fall between A.D. 1350 and A.D. 1400. The beginning date of A.D. 1350 is based upon seriational change estimates from the late Pickering branch date at the Bennett site of A.D. 1260 and typological and radiocarbon data from the Oakfield and Getman sites. The terminal date of A.D. 1400 is based upon the assumption that at least 200 years would be necessary to incorporate the developments seen in the Late Ontario Iroquois stage. Such a method of calculation is hazardous, and radiocarbon dates from the later stages of the Ontario Iroquois Tradition are needed to place the chronology on a more acceptable basis.

SUMMARY

The Middle Ontario Iroquois stage was initiated by two processes: the unbroken cultural development of the Pickering branch in southeastern Ontario and the conquest and cultural absorption of the Glen Meyer branch by the Pickering branch in southwestern Ontario. These processes created a widespread and relatively homogeneous complex over much of Southern Ontario and a large area of southwestern New York, which has been called the Uren substage. Owing to the nature of the two formulating processes, the Uren substage sites can be compared with late Pickering branch sites in southeastern Ontario. In terms of time this substage is thought to have begun by A.D. 1300 and to have terminated by A.D. 1350. Developing directly out of the Uren substage, with the addition of an adopted pipe complex, is the Middleport substage. With the regional differentiation of complexes out of a common Middleport base around A.D. 1400 the Middle Ontario Iroquois stage is terminated and the Late Ontario Iroquois stage begins.

The settlement pattern characteristics of the Uren and Middleport substages appear to be virtually identical, consisting of numerous small camp-sites and the occasional large village site. Defensive considerations, with regard to site location, appear to be minimal, and this situation may reflect the military strength of the Ontario Iroquois Tradition during the Middle Ontario Iroquois stage. The pattern of single and multiple burial of the Early Ontario Iroquois stage has evolved into the large ossuary burial, at least by the Middleport substage. Corn, with the exception of the single sunflower seed from the Uren site, represents the sole domesticated vegetable crop being grown. Evidence of cannibalism appears for the first time in the Ontario Iroquois Tradition and is represented in both the Uren and Middleport substages. This evidence consists of small quantities of fragmented human bone in the refuse middens and the appearance of human skull gorgets. Faunal remains are characterized by a complete utilization of the available species with some emphasis on fish.

Artifact types and traits characteristic of the Uren substage are the dominance of the Iroquois Linear, Ontario Oblique, and Ontario Horizontal pottery types; the poorly developed pipe complex carried over from the Early Ontario Iroquois stage; the dominance of the ribbed paddle, checked stamp, and scarified techniques of vessel surface treatment; the dominance of the chevron and face motifs below the castellation; and the presence of such traits as the pottery gaming disc, the cup-and-pin game deer phalange, slate pebble pendants, and the broad triangular projectile point.

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[1] At the time this manuscript was in press a radiocarbon date of A.D. 1360 ± 100 (M–1526) was obtained from the Beswitherick Site in Simcoe County. This site is early in the Middleport substage and was excavated by Mr. E. R. Channen of the Simcoe County Museum.

Artifact types and traits characteristic of the Middleport substage are the dominance of the Ontario Horizontal, Middleport Oblique, and Lawson Incised pottery types; the elaborate pipe complex; the dominance of the ribbed paddle technique of vessel surface treatment; the increase in collared vessels; the presence of such traits as the netting needle, cylindrical antler flakers, the cup-and-pin game deer phalange, the pottery gaming disc, whistles or flutes, slate pebble pendants; and the increase of side-notched triangular points.

"From this Middleport Horizon base it is postulated that internal change was largely responsible for the eventual differentiation of the Neutral, Erie, and Huron-Petun tribal units" (Wright, 1960: 5).

The evidence for the divergences from the Middle Ontario Iroquois stage or horizon of the Ontario Iroquois Tradition, which terminated in the four historic Ontario Iroquois tribes, is given in the following chapter.

CHAPTER FIVE

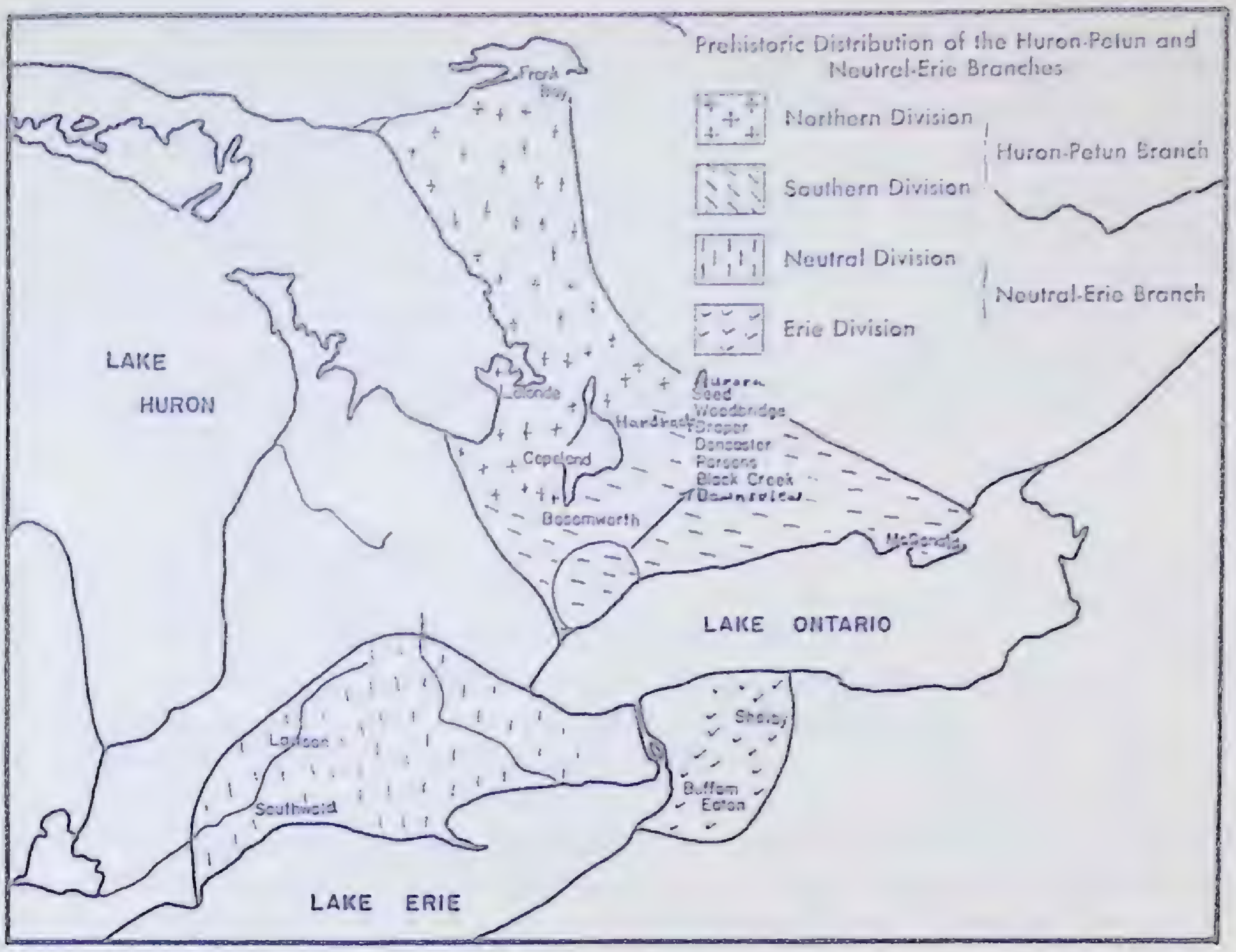
The Late Ontario Iroquois Stage

An Examination of the Cultural Divergences from the
Middleport Substage, Beginning by A.D. 1400
And Terminating with the Destruction of the Huron,
Petun, Neutral, and Erie in the Mid-17th Century

The Late Ontario Iroquois stage evolves directly out of the Middleport substage of the Middle Ontario Iroquois stage. Two major divergences take place with one resulting in the Huron and Petun and the other in the Neutral and Erie. Thus, two branches, or cultural continua, will be examined. These are the Huron-Petun branch and the Neutral-Erie branch. By approximately A.D. 1400 both branches have sufficiently differentiated from their common antecedents in the Middleport substage to allow an effective separation.

The Huron-Petun branch possesses a southern division and a northern division. Both these divisions represent geographic variations within a common complex. The southern division developed out of Middleport sites along the north shore of Lake Ontario and very slowly began to shift northward up river systems such as the Humber and the Trent. Simultaneously a parallel development was taking place in the northern portion of southwestern Ontario (Bruce and Grey counties), and in Huronia proper (Simcoe County). A portion of this development has been called the Lalonde culture (Ridley, 1952*a*; 1952*b*), but in this study it is designated the Northern division of the Huron-Petun branch. As will be demonstrated, the only effective means of separating the Northern and Southern divisions is by the high frequency of one pottery type in the former. Almost certainly the close cultural similarities between the two divisions stem from their common Middleport antecedents as well as continued contacts with each other. For a considerable period both divisions evolved independently but parallel to one another. By approximately A.D. 1550, however, the northward shift of the Southern division resulted in a gradual blending of the two divisions. To this common complex, created by the fusion of the already closely related Northern and Southern divisions, the closely related Huron and Petun of the historic period can be assigned.

General features held in common by both divisions are the abundant evidence of a Middleport ancestry in the earliest stages of both developments, and a similar settlement pattern consisting of large (5 to 25 acres), palisaded villages located frequently on promontories distant from navigable water. More specific comparisons can be seen in the pottery types (with the exception of the high frequency of the Lalonde High Collar type in the Northern division), the pipe and castellation complexes, and the bone and stone assemblages.

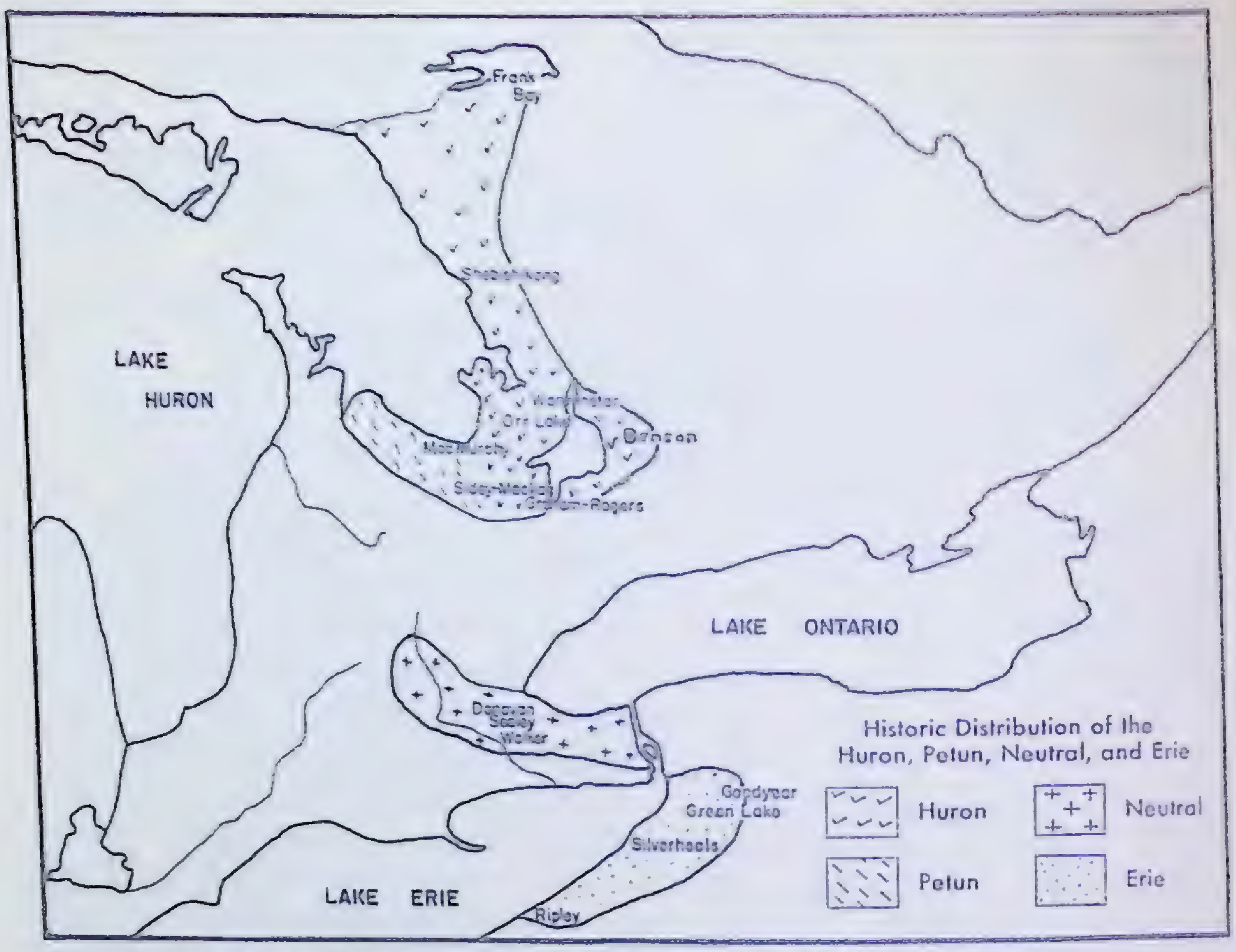


MAP 4 The Late Ontario Iroquois stage, prehistoric distribution

It would be convenient to regard the Northern division as the prehistoric Petun, and the Southern division as the prehistoric Huron. The available evidence, however, suggests that the Hurons, at least, were a product of fusion of the two divisions just prior to white contact.

The historical evolution of the Neutral-Erie branch is comparable to events seen in the Huron-Petun branch but differs in one major respect. As with the Northern and Southern divisions of the Huron-Petun branch, the Neutral and Erie divisions of the Neutral-Erie branch evolved from a common Middleport base. Indeed, the evidence of a Middleport ancestry is more fully maintained in both the Neutral and Erie divisions than was the case with the Huron-Petun branch. Where the Neutral-Erie branch differs from the Huron-Petun branch, however, is in the absence of a late prehistoric fusion of the two divisions. The Neutral appears to evolve directly from a Middleport base in southwestern Ontario, while the Erie also evolves directly from the same cultural base in southwestern New York.

Information on the Neutral-Erie branch is not nearly so complete as the data on the Huron-Petun branch. The available evidence does suggest that sites have increased in size and that defence is a factor in their location. Ossuary burial was practised in both divisions. As with the Northern and Southern divisions of the Huron-Petun branch, the close similarities seen between the Neutral and Erie divisions are thought to stem from their



MAP 5 The Late Ontario Iroquois stage, historic distribution

common Middleport antecedents as well as later associations. Close comparisons exist between the two divisions with regard to pottery types, pipe and castellation types, and the lithic and bone assemblages. A feature which allows the separation of the Erie division from the Neutral division is the evidence of Upper Mississippi influence in the former.

THE HURON-PETUN BRANCH

To reiterate, the development of the Huron and Petun tribal groups from the Middle Ontario Iroquois stage (Middleport) appears to be a bilineal development. A series of sites located along the north shore of Lake Ontario were gradually shifting to the north and northwest up the major river systems (Emerson, 1961). These sites are called the Southern division of the Huron-Petun branch, and their development from Middleport sites(Robb and Millroy) along the north shore of Lake Ontario is demonstrable.

To the north, in Huronia proper, are a number of sites which have been designated the Lalonde culture (Ridley, 1952*a* and *b*). In this report these sites are regarded as the Northern division of the Huron-Petun branch, and their development out of Middleport components (Nodwell, Inverhuron, Webb, Frank Bay) in the Huronia area and adjacent regions is also demonstrable (Harper, 1952; Ridley, 1952*a*, 1964; Kenyon, 1959*b*; Wright, 1960).

Finally, there are a number of sites in Huronia and to the south and west of Huronia proper which appear to represent the fusion of hte Southern and Northern divisions of the Huron-Petun branch. These sites lead directly to the historic Huron and Petun.

Information on the Huron-Petun branch is quite variable. For some sites there is a complete site and artifact description as well as a rim sherd seriation. Other sites possess only the rim sherd seriation, and some sites lack a rim seriation following MacNeish but contain a nearly complete site and artifact description. Despite these inconsistencies, the vast amount of data which is available for the Huron-Petun branch gives substance or weight to the following events.

Southern Division

Ten Southern division sites are used for comparative purposes. These are the Black Creek, Woodbridge, Seed, Parsons, Draper, Doncaster, Downsview, and Aurora sites of the Toronto area, the McDonald site near Kingston, and the Hardrock site on Balsam Lake just east of Lake Simcoe. Three of the above sites possess a rim sherd seriation and complete site and artifact descriptions. These are Black Creek (Emerson, n.d.; MacNeish, 1952), Woodbridge (Emerson, n.d.; MacNeish, 1952), and McDonald (Emerson, 1960; Pendergast, 1963). Four of the sites possess rim sherd seriations and a general site description but no data on artifacts other than rim sherds. These are Seed (MacNeish, 1952), Parsons (Emerson, 1956), Draper (Wright, unpublished data; Donaldson, 1962), and Doncaster (rim sherd seriation by P. P. Pratt). Three sites lack a rim sherd seriation but have been completely described. These are Downsview, Aurora, and Hardrock (Emerson, n.d.). All of the preceding sites, with the exception of Doncaster and Draper, were excavated by Dr. Emerson. It also should be noted that the Woodbridge site has been called McKenzie and the McDonald site has been called Payne.

The Doncaster site is located in a level valley beside a small stream. Midden deposits occur over a limited area, and an ossuary is reported to be covered by a nearby house. The site appears to be small, but an estimate of the acreage covered is not available.

The Downsview site covers approximately five acres of the top of a hill above a small stream. No settlement or house data were recovered. The usual midden deposits are found on the site. Tenuous evidence of cannibalism consisted of a mandible pendant.

The Draper site occupies seven acres along the edge of a steeply banked creek. Numerous middens, which still existed as mounds, covered the site. A small portion of a probable longhouse was exposed.

The Black Creek site is located on the flat river bottom lands at the edge of a low hill beside a small stream and occupies approximately five acres. Besides the usual midden deposits, portions of a palisade were exposed. The palisade consisted of a double row of posts with each row having large posts one foot in diameter spaced every five feet and connected by smaller posts. Evidence of the palisade was encountered at the base of a low hill and extended halfway up the slope.

The Aurora site is located on the top of a steep-sided hill overlooking a small stream. Approximately five acres are covered by the site. A number of bundle burials have been reported adjacent to the site.

The Hardrock site occupies a shore line on Balsam Lake and covers an undetermined area. The land is flat and offers no defensive advantages. Along with the usual midden debris a longhouse was excavated. This structure measured 150 feet by 24 feet and contained four central hearths. No interior posts, other than the myriad of small posts associated with the hearths, and a partition at one end, were encountered. A single doorway was located in the side toward one end. Both ends of the structure were rounded in the usual pattern. Two fragments of human bone in the refuse may be indicative of cannibalism.

The following general information on the Parsons site is drawn from my recollections at the excavation in 1952. The site is large, occupying nearly seven acres of a flat plateau flanked on two sides by the steep ravines of a small stream. A multiple palisade as well as portions of house structures was exposed. Of particular interest was the abundance of fragmented human remains in the middens and the presence of mandible and skull gorgets, all of which suggested cannibalism. An ossuary is stated to have been discovered in the immediate area of the site.

The Woodbridge, or McKenzie, site covers more than five acres of the top of a steeply flanked hill overlooking the Humber River. The site was surrounded by a palisade; seventeen house structures were encountered. One house was completely excavated; it measured 174 feet by 28 feet and contained four central hearths with the usual associated small posts. No other interior posts were found. The house was rounded at both ends and possessed two doorways; one at a corner and the other in the opposite side near the far end. Human skull gorgets suggested the possibility of cannibalism. A looted ossuary is stated to be one quarter of a mile from the site.

The following general information on the Seed site comes from my observations on the site during its excavation by Dr. Emerson. The site is located on a flat plateau bordered on two sides by steep embankments cut by the nearby Humber River. A multiple palisade was found to run along the crest of the slope. A rough estimate of the area covered by the site would be five acres.

All the preceding sites produced varying quantities of carbonized corn, and a number also produced beans and squash. Quantitative data on these domesticates are lacking. An important fact, however, is the first definite appearance of beans and squash.

The comparisons of the rim sherds for seven of the preceding sites can be seen on Table 16, Part II of the Appendix. All the rim sherd samples appear to be quite adequate for purposes of comparison. The combined frequencies of the Black Necked, Huron Incised, Lawson Incised, and Lawson Opposed pottery types account for 70 per cent to 43 per cent of the total rim sherd count of the sites under consideration, and their high frequency is regarded as a major distinguishing character of the Southern division components. In the earlier portion of the sequence the Pound Necked type also has a considerable representation. This particular type is regarded as one of the evidences for a Middleport ancestry of the sequence under consideration as well as types such as Ontario Horizontal, Lawson Incised, Lawson Opposed, and Middleport Oblique. The Lalonde High Collar pottery type can be seen to have a low but persistent occurrence upon all the sites. This is thought to reflect evidence of contact between the Southern division and the Northern division. The presence of the type at the Black Creek and Woodbridge sites was determined through an examination of the plates in Emerson's unpublished thesis. The type was also present at the Downsview and Hardrock sites (Emerson, n.d.). An examination of a collection from the Seed site in the National Museum also revealed the presence of this important pottery type. A low but significant percentage of Onondaga pottery types, such as Onondaga Triangular and Durfee Underlined, may be noted on all but the earliest site in the sequence (Doncaster). Their presence strongly suggests that cultural contacts between the Southern division and the prehistoric Onondaga of extreme eastern Ontario were taking place.

The most significant trends of the Southern division pottery types running from early to late are the gradual decrease of the Black Necked type, the increase of the Huron Incised type, the bimodal distribution of the Lawson Incised and Lawson Opposed types, the strong representation of the Pound Necked type and its sudden disappearance toward the end of the sequence, the late increase of the Sidey Notched and Seed Incised types, the persistence of Onondaga pottery types, and the low but continuous representation of the Lalonde High Collar type.

An examination of the coefficients of similarity of these seven sites on Chart VI, Part III of the Appendix, supports a proposed chronology from early to late of Doncaster, Draper, Black Creek, McDonald, Parsons, Woodbridge, and Seed. The highest coefficients of similarity exist between the three earliest sites (Doncaster, Draper, and Black Creek), the two intermediate sites (Parsons and McDonald), and the two latest sites (Woodbridge and Seed).

Data on body sherd treatment are available from the Downsview, Black Creek, Woodbridge, Aurora, and Hardrock sites (Emerson, n.d.). All the sherds are apparently plain with the exception of some checked stamp sherds at the Hardrock site. The checked stamp technique at this site probably does not represent a Middleport survival but rather a reintroduction from prehistoric Onondaga sites to the east of the Rideau River system of eastern Ontario (Wintemberg, 1936; Pendergast, 1962; 1963; in press).

The pipe sequence within the Southern division of the Huron-Petun branch appears to be quite significant but needs to be examined quantitatively as well as typologically before the apparent trends can be accurately evaluated. The available evidence (Emerson, n.d.; Pendergast, 1963) suggests that the elongated ring, apple bowl ring, Iroquois ring, and plain trumpet pipes dominate the early portion of the sequence and are gradually reduced in frequency by the appearance of the coronet, mortice, and effigy pipes later in the sequence. Also, in the earlier portion of the sequence a small number of the faceted and punctated pipe stems of the Middle Ontario Iroquois stage are still to be seen as well as Middleport substage types.

Castellation varieties are predominantly pointed although the bifurcated and squared varieties show an increase from early to late (MacNeish, 1952: 31, Table III).

The pottery gaming disc, which was so prevalent in the Middle Ontario Iroquois stage, is largely absent from the Southern division sites with the exception of the Aurora and McDonald sites.

The worked deer phalange appears to be a good indicator of the chronological position of Southern division sites (Emerson, n.d.). Early in the sequence the cup-and-pin game variety either represents the only variety or the dominant variety. Later in the sequence, however, the toggle or faceted deer toe bone variety becomes the dominant form. Worked bear canines are found throughout the sequence. Another bone trait which appears to be characteristic of the earlier portion of the sequence is the bone projectile point. These points are usually represented by both conical and wedge-shaped varieties. Bone awls and beads are abundant on all the sites.

The side-notched triangular projectile point of the Middleport substage is dominant in the earliest portion of the Southern division sequence but rapidly gives way to the unnotched isosceles triangular projectile point which continues to the historic period. Polished stone adzes occur throughout the sequence. Scrapers consist of a number of varieties and have an irregular distribution, although generally they are quite scarce.

The Northern Division

Only two major Northern division sites are available for comparison. These are the Lalonde site (Ridley, 1952*a*) and the Copeland site (Channen and Clarke, 1965). Both sites are located within the confines of the Huronia proper in Simcoe County. A number of other components of the Northern division are known (Ridley, 1952*a*; 1954), but their use as comparative units is limited by the small amount of material available. Rim sherd seriations and site and artifact descriptions exist for the Lalonde and the Copeland sites.

The Lalonde site occupies five acres of a plateau bordering a ravine. No data are available regarding a palisade, house structures, or burials.

The Copeland site covers 3.5 acres of the side of a large hill above a small valley containing a spring. A palisade surrounding the village consists of a single row of stakes in the area of greatest natural defence and a double row of stakes where no steep embankment offers an extra degree of protection. Four house structures measuring 90 feet by 55 feet, 88 feet by 24 feet, 45 feet by 20–30 feet, and 42 feet by 30 feet have been completely exposed. The evidence of interior posts in all four houses suggests the presence of sleeping platforms. Hearth pits, and what apparently were storage pits, occur in every house. Three of the houses possessed square ends. The fourth was squared at one end and rounded at the other. It would appear that the largest house represented the ceremonial lodge where feasting and entertaining were generally carried out by the historic Huron (Kinietz, 1940: 41). Indeed, a central line of large posts was needed in this structure to permit its excessive width. Four fragments of a newborn child's cranium, found at the base of a complex feature, represented the only human remains recovered. In the middens, a number of which were located just outside the palisade, carbonized corn, beans, squash or pumpkin, and sunflower seeds were found. A faunal analysis showed the usual exploitation of the local resources with fish, deer, beaver, bear, fox, turtle, and dog remains being most common in the middens. The absence of human remains in the refuse deposits suggests that cannibalism was not practised.

Information on the Northern division of the Huron-Petun branch was first presented by Ridley (1952*a*) in his formulation of the 'Lalonde Culture.' Since Ridley published his data on the Lalonde site prior to the appearance of MacNeish's work on Iroquois pottery types, an attempt was made to determine the frequencies of MacNeish's types at the Lalonde site, using the plates and descriptions. This attempt was only partially successful, and a large miscellaneous category was necessary as well as the lumping of as many as three pottery types under one category. It was felt that such an adjustment to Ridley's seriation was justifiable in order to allow comparisons between the Lalonde site and the other Huron-Petun branch sites where MacNeish's typology has been applied. The revised rim sherd seriation for the Lalonde site is given in Table 17, Part II of the Appendix. The rim sherd seriation of the Copeland site is given in Table 18, Part II of the Appendix. Rim sherd samples from both sites are quite adequate for purposes of comparison.

On both Tables 17 and 18 two pottery types appear which are not included in MacNeish's analysis of Iroquois pottery types. These two pottery types are Lalonde High Collar and Copeland Incised. The former pottery type is described and illustrated by Ridley (1952*a*: 205), and the latter pottery type was recognized by Ridley under the category 'interrupted horizontal line' (*ibid.*: 207–208) and was given a type name by me during my examination of the Copeland site rim sherds. The diagnostic features of the Copeland Incised pottery type are incised horizontal lines on a short collar which are frequently broken by vertical or oblique incised lines. Over two-thirds of the sixty-four specimens examined possess shallow, ovate punctates (not gashes) at the base of the collar or at both the base and the top of the collar. The most common motifs are alternating zones of horizontal incised lines and vertical incised lines with or without punctates; horizontal incised lines with punctates at both the base and top of the collar (above and below the horizontal motif); and alternating zones of horizontal incised lines and oblique incised lines. The base of the collar is always sharply defined, and in profile channelled collars are slightly more common than convex interior collars. Lip and interior decoration are generally lacking.

As illustrated in Table 18 and, in part, in Table 17, the major pottery types of the Northern division are Lalonde High Collar, Huron Incised, Black Necked, and Sidey Notched. Two of these types, Huron Incised and Black Necked, are also dominant types in the Southern division of the Huron-Petun branch. Lalonde High Collar is present throughout the Southern division sequence but is represented by very few sherds. Also, the Sidey Notched type is present on most of the Southern division sites and shows a marked increase toward the end of the sequence. Perhaps this increase correlates with the northward advance of the Southern division and its closer contacts with the Northern division. The Middleport antecedents of the Northern division may be seen in the presence of the Lawson Incised, Middleport Oblique, and

Ontario Oblique pottery types. It would also appear that the Copeland Incised pottery type is a quantitative marker of the Northern division of the Huron-Petun branch, although I have seen examples on Southern division sites. Judging from the rim sherd data, the Lalonde site would be earlier in the Northern division sequence than the Copeland site. Another interesting feature, which can be seen in the pottery type analysis of the Northern division, is the absence of Onondaga pottery types. This situation is understandable if one regards the Southern division, with its abundant evidence of Onondaga influence, as a buffer between the Northern division and the Onondaga of eastern Ontario which prevented appreciable contacts.

In the examination of the non-rim sherd data of the Northern division, the Copeland site with its large, seriated body of data is used. The information acquired from this site duplicates and extensively enlarges upon the information obtained by Ridley from a much smaller series.

Body sherds have not been examined with regard to surface techniques. From my examination of the Copeland site sherds, however, I got the impression that the vast majority of the body sherds are plain.

Minor ceramic traits found on Northern division sites are pottery handles, gaming discs, and beads.

Pipe varieties duplicate those found on Southern division sites and consist largely of the Iroquois ring, ring barrel, and plain trumpet pipes. The coronet and mortice pipes, which appear late in the Southern division sequence, are absent. Effigy pipes may be present but are rare.

Castellations are predominantly of the pointed variety although nubbin and multiple castellations are substantially represented. Since the nubbin castellation is normally associated with the Lalonde High Collar pottery type, its higher frequency on Northern division sites is understandable.

Common bone traits are awls, bird bone beads, projectile points (conical and wedge-shaped varieties), and cup-and-pin game deer phalanges. These bone traits were also the most frequent ones found on Southern division sites. Minor bone traits which also duplicate those of the Southern division are netting needles, wristlets, pendants, fishhooks, and antler flakers.

Projectile points are represented by both isosceles triangular and side-notched isosceles triangular varieties. Scrapers are rare, relative to the rest of the artifact assemblage.

Polished stone artifacts are usually represented by adzes, hammerstones, whetstones, drilled stones, anvil stones, beads, and pendants. Only the drilled stones, which may have functioned as netsinkers, were not found in the Southern division of the Huron-Petun branch.

The Fusion of the Northern and Southern Divisions

There are seven sites which are felt to be the result of a fusion of the Southern and Northern divisions of the Huron-Petun branch. These sites are Bosomworth, Sidey-Mackay, Benson, MacMurchy, Graham-Rogers, Warminster (Cahiague), and Orr Lake. The Warminster and Orr Lake sites are located in Huronia proper, and the MacMurchy site is situated near Collingwood in the historic Petun area. The Benson site is located near Coboconk to the east of Lake Simcoe, and the Bosomworth, Sidey-Mackay, and Graham

Rogers sites flank the southern and western portions of the historic Huron and Petun settlements. All the sites, with the exception of Bosomworth, are historic. The Sidey-Mackay and Benson sites are early historic and were probably occupied toward the end of the 16th century. Both the Warminster and Orr Lake sites are late historic (first half of the 17th century) Huron stations and have been attributed to the historically recorded village sites of Cahiague and St. Michel. The MacMurchy site is fairly certain to have been a Petun village. No data are available on the amount of white trade goods found at the Graham-Rogers site, but Emerson (1961: 11) would place it between the early historic Sidey-Mackay site and the late historic MacMurchy site.

For the Bosomworth site there is a very general site description and a rim sherd seriation (Emerson, 1959*b*; 1961). The Sidey-Mackay has a complete site and artifact description (Wintemberg, 1946) and a rim sherd seriation (MacNeish, 1952). A rim sherd seriation for the Benson site is lacking although there is a complete site and artifact description (Emerson, n.d.). Only the rim sherd data are available for the MacMurchy (Emerson, 1961), Graham-Rogers (*ibid.*), and Orr Lake sites (MacNeish, 1952). General information on the Warminster site as well as a rim sherd seriation has been published (McIlwraith, 1946; 1947; MacNeish, 1952; Emerson, 1962).

The Bosomworth site occupies approximately five acres at the base of a hill. A few hundred yards from the site a large cemetery was encountered which produced an abundance of flexed burials. Since the only grave object to be found was a bone point, the definite association between the cemetery and the village is still in doubt.

The Sidey-Mackay site occupies a plateau nearly surrounded by ravines. No information is given regarding the area covered by the plateau, but it is mentioned that the site was defensible and that a portion of a palisade was encountered. Eighteen midden deposits produced carbonized corn, beans, squash, and sunflower seeds, fragmented human and dog remains, as well as the usual cultural debris. At least two separate burials had been removed from the site prior to Wintemberg's investigations. Since a single sheet of brass was found at the bottom of one midden, the site is regarded as being historic and would probably date somewhere around the latter half of the 16th century.

The Benson site covers three acres of a low hillock adjacent to a stream. In general, the situation of the site would not be advantageous to defence. One longhouse was encountered partially under a midden deposit. Only one end of the house was exposed, and this was rounded as in the cases of the Woodbridge and Hardrock sites. Carbonized corn and beans and one human temporal bone were found in the rich midden deposits. From the limited evidence of white trade goods, this site, which, like the Sidey-Mackay site, would probably date around the latter half of the 16th century, is regarded as early historic.

No data are available for the MacMurchy site other than that it is stratified, borders a creek, and contains an abundance of trade goods in the latest stratum.

There is no information on the Graham-Rogers site other than the rim sherd data.

The Warminster site covers twenty-five acres of the side of a gradually sloping hill and is protected on two sides by stream-cut ravines and at one end by a steep embankment. An ossuary about a hundred yards away produced white trade goods with the skeletal remains. Recent excavations by Dr. Emerson have exposed a large number of house structures as well as a palisade. Since the Warminster site is almost certainly the major Rock clan village of Cahiague visited by Champlain in A.D. 1615 and abandonded by the Hurons in A.D. 1648, it represents a vital link with the ethnohistoric records.

A published description of the Orr Lake site is lacking. If the ethnohistoric data are accurate, this site should be St. Michel or Scanonaenrat, the single village of the One-White-Lodge clan (Jones, 1909: 435) of the Huron which was abandoned in A.D. 1649.

The rim sherd seriations for six of the preceding sites are given in Table 19, Part II of the Appendix. With the exception of the prehistoric Bosomworth site, the two dominant pottery types, which account for half or more of the total rim sherds, are Huron Incised and Sidey Notched. The early position of the Bosomworth site is reflected in the high percentages of the Lawson Incised, Black Necked, and Lalonde High Collar pottery types. Also, the site's early position in the fusion between the Southern and Northern divisions is seen in the dominance of an apparently Southern division type like Warminster Crossed and in the high representation of the Northern division Lalonde High Collar pottery type. I can find no explanation for the absence of the Sidey Notched type. It is interesting to note that all the historic sites, be they Huron or Petun, possess 50 per cent or more of the Huron Incised and Sidey Notched pottery types. Therefore, the dominance of these two types will be regarded as the 'major diagnostic' of the Fusion sites. It is also interesting to note that the late historic Petun site of MacMurchy can be roughly separated from the late historic Huron sites of Orr Lake and Warminster by its much higher percentage of the Sidey Notched type and by the absence of the Warminster Crossed type. Two other Fusion sites, Sidey-Mackay and Graham-Rogers, resemble the MacMurchy site in possessing high frequencies of the Sidey Notched type and low frequencies of the Warminster Crossed type. Wintemberg regarded the Sidey-Mackay site as an early historic Petun village (Wintemberg, 1946: 154), and Emerson placed the Graham-Rogers site in the direct line to the MacMurchy site (Emerson, 1961: 11). Perhaps the Sidey-Mackay and Graham-Rogers sites are involved in a late prehistoric–early historic development which gave rise to the historic Petun, and the frequencies of the Sidey Notched type reflect this relationship. Onondaga pottery types are absent from the Fusion sites except at the Sidey-Mackay and Benson sites. This decline of Onondaga influence may well reflect the late prehistoric migration of the Onondaga of eastern Ontario into New York State. It may also be noted that Seneca and Cayuga pottery types show an increase in the Fusion sites (Seneca Barbed Collar, Dutch Hollow Notched, Genoa Frilled, Richmond Incised). This situation appears to indicate a change in the areas of influence on the Huron-Petun branch. First, the Onondaga, to the east, influenced the Southern division but not the Northern division, since the former acted as a buffer. Second, with the blending of the

Northern and Southern divisions the Onondaga influence largely disappears and is replaced by influences derived from southwestern New York. The Fusion sites possessing evidence of Onondaga influence are each assignable to the early historic period, and each bears close relationships to the late prehistoric sites of the Southern division.

Chart VI, Part III of the Appendix, presents the coefficients of similarity for the six sites under consideration. All the coefficients are taken from Emerson (1961:17). The Bosomworth site possesses a low degree of relationship with all the sites except Sidey-Mackay. Since the Bosomworth is prehistoric and the Sidey-Mackay is early historic (one trade item), the relationship is understandable. The highest degrees of relationship exist between the Graham-Rogers site and the late historic Petun site of MacMurchy, and between the two late historic Huron sites of Orr Lake and Warminster. Of interest is the equal degree of relationship seen between the one late historic Petun site (MacMurchy) and the two late historic Huron sites (Orr Lake and Warminster). The coefficients between the MacMurchy site and the Orr Lake and Warminster sites clearly indicate the similarities in rim sherd types that existed between the historic Petun and Huron.

The only complete description of artifacts other than rim sherds comes from the Sidey-Mackay site (Wintemberg, 1946) and the Benson site (Emerson, n.d.). Supplementary data are available from the Angoutenc site (Ridley, 1952*a*), a late historic Bear clan village of the Hurons.

Body sherds are predominantly plain although the survival of earlier surface treatment techniques such as cord malleation and scarification were noted at the Sidey-Mackay site. A number of body sherds with incised decorations were recorded by Ridley at the Angoutenc site and are illustrated by Wintemberg for the Sidey-Mackay site.

Pottery gaming discs were present at all three sites and were particularly abundant at the Benson site. Pottery beads were also recovered from the Sidey-Mackay site.

In the pipe complex, the apple bowl ring, Iroquois ring, and plain trumpet varieties have largely been replaced by the mortice, coronet, collared ring, acorn ring, and a wide range of effigy pipes. Also, a large percentage of the pipe stems are decorated, as opposed to the plain specimens of the earlier sequences.

Castellations are predominantly of the turret, grooved, and multiple varieties.

Bone awls and bird bone beads are common traits on all the sites. The virtual disappearance of the cup-and-pin deer phalange and its replacement by the toggle variety of deer phalange are significant. Worked bear and other carnivore canines are common. A trait which appears to have gained in importance is the unilateral and bilateral barbed harpoon.

Projectile points are predominantly the isosceles triangular type, although side-notched specimens are still present. Scrapers are relatively scarce as are most of the other lithic traits such as adzes, anvil stones, and stone beads.

As can be seen from the foregoing account, there is a great need for the complete analysis of late historic components of the Huron-Petun branch. A large number of such components exist, and, indeed, several have already been excavated. With the vast amount of information which is available in the *Jesuit Relations* and the journals of Sagard and Champlain, it is possible to know the actual clan affiliation of certain sites. It then becomes possible to determine to what degree the various clan villages of the Huron possessed a common archaeological assemblage. With a very few exceptions (Kidd, 1953) the potential of the archaeological and ethnological interrelationships existing in Huronia has not been touched.

An Interpretational Controversy

In his publications of 1952 Ridley proposed the existence of a prehistoric 'Lalonde Culture' in Huronia which was clearly distinguishable from the late prehistoric and historic 'Huron Culture' of the same area. It was stated that the Lalonde focus evolved out of a Uren and Webb (Middleport) base and was modified by Mississippi influence. A Lalonde invasion of eastern New York is regarded as having laid the foundations for the historic Eastern Iroquois. While the invasion of eastern New York State was progressing, continued Mississippi influence on the Lalonde people in Ontario apparently modified them into the historic Huron. Another invasion of the Mississippian acculturated Lalonde people (Huron) to the south resulted in the historic Seneca, Erie, and Neutral. The contribution of Ridley's descriptive data was readily acknowledged although, with regard to the speculative role played by the Lalonde focus, "it is felt that the possibility of a late prehistoric status for this focus and a cultural position as a stage of 'developmental Huron' should not be rejected despite the clear cut differences between Lalonde and contact Huron which Ridley has shown in his trait analysis" (Popham and Emerson, 1952: 162).

It was further suggested that "Lalonde-like cultures moved from south to north, rather than in the opposite direction, in central Ontario" (*ibid.*). Ridley rejected this view of a northward migration to Huronia and stated "that the MacNeish-Emerson theory of Huron origin is wrong and only achieved by an unwarranted selection of data" (Ridley, 1958*b*: 3). Emerson (1959*a*; 1961) quickly retaliated with evidence demonstrating the south-to-north migration of the prehistoric Hurons. In response, Ridley (1963) designated Emerson's sites (Southern division in this report) as components of the Lalonde culture. His speculations on the role played by the Lalonde culture in Iroquois prehistory also deviated from his earlier statement (Ridley, 1952*b*). The Lalonde culture is now regarded as the ancestor of "an amorphous Late Prehistoric population spread at least from the Toronto area to Huronia." And, further,

> "This mass of Iroquoians had in Lalonde times cast off, or separated from an eastern group which is represented by the Onondaga tribal or Roebuck site material culture. I presume that the population divided, crystalizing into a Neutral nation by a gradual withdrawal from the Toronto area to the Grand River valley and the area around the west extremity of Lake Ontario. The northern division unmoved, would become the Huron nation. At present levels of study it is indeterminate whether the Petun were Huron, Neutral or a fusion of both" (Ridley, 1963: 57).

In the present study it is evident that I agree and disagree, in part, with the views of both Emerson and Ridley. I agree with Emerson that the Southern division sites shifted northward to play an important part in the formation of the historic Huron and Petun. But at the same time I do not support the statement that the Lalonde High Collar pottery type developed through Middleport influence on early Southern division sites and then moved northward. The high frequency of the Lalonde High Collar pottery type in the late Middleport substage site of Inverhuron in the Bruce Peninsula suggests that the elaboration of the type took place in the northern portion of southwestern Ontario. Also, the absence of Iroquois sites other than components assignable to the Middleport substage in Bruce County suggests that during late Middleport times the Iroquois population of this area shifted eastward into Huronia to form a more concentrated population with the already existing Middleport sites in Simcoe County. With reference to Ridley's views, I agree with his *in situ* development of the Lalonde (Northern division) complex out of a Middleport base in Huronia. On the other hand, I cannot agree with any of Ridley's speculations (1952*b*; 1963) regarding the role played by the Lalonde people in Ontario Iroquois prehistory.

The comparative data presented in this chapter strongly suggest that the Northern division (Ridley's Lalonde Culture) is not a separate culture from the Huron-Petun branch, but rather it is one of the two major divisions in the late prehistoric development of the Huron-Petun branch which fused together to result in the historic Huron and Petun tribal units. I feel that such an interpretation is demonstrable and that it resolves, in large part, the controversy that has surrounded these two spatial divisions. Ethnohistoric sources also may be used to support the sequence of events involved in the Huron-Petun branch as outlined in this chapter:

> "The Bear and Cord people were the two most important groups, having received the others into their country. According to Lalemant they spoke of the different sites of their ancestors for more than two hundred years back and termed each other 'brother' and 'sister' " (Kinietz, 1940: 59).

Father Lalemant (1639, Vol. 16: 227–229), in referring to the Huron and Petun, stated, "Formerly they waged cruel wars against each other, but they are now on very good terms, and but a short time ago they renewed their alliance." We know from the historic records that the Huron consisted of four clans (Bear, Cord, Rock, and One-White-Lodge) and that the Petun were divided into two clans (Wolf and Deer). Is it possible that the 'cruel wars' referred to by Lalemant stemmed from Southern division incursions on the territory of the Northern division, and is it possible that the Northern division originally consisted of the Bear, Cord, Deer, and Wolf clans whereas the Southern division consisted of the Rock and One-White-Lodge clans? We do know from Lalemant that the Bear and Cord clans recognized an ancestry of 200 years in Huronia and accepted the Rock and One-White-Lodge clans into their country. If this oral tradition of a 200-year occupancy is even approximately correct, it would represent the estimated archaeological time span of the Northern division of the Huron-Petun branch. As a highly speculative reconstruction it may be suggested that the northward movement of the Southern division resulted in the outbreak of hostilities with the Northern division some time during the latter half of the 16th century. Hostilities were terminated with the acceptance of the Rock and One-White-Lodge clans of the Southern division into the territory of the Bear and Cord clans of the Northern division. This situation did not meet with the approval of the Wolf and Deer clans of the Northern division who moved to the west to reside in the Blue Mountain area and to dissociate themselves from the Bear and Cord clans and their newly acquired confederates. Such a series of events would explain the oral tradition of hostilities and clan movements and why the Huron and Petun were culturally and linguistically so similar. It would also explain why the Rock and One-White-Lodge clans of the Huron occupied the southern frontier of Huronia and why both the Huron and the Petun referred to themselves as the Wendot.

Although such a reconstruction is highly speculative, it may not be merely coincidence that the oral traditions of the historic Huron and the late prehistoric and early historic archaeological events of the Huron-Petun branch correlate so neatly, especially when the ethnohistoric data were encountered after the archaeological reconstruction had been completed.

Ethnohistoric Information on the Huron and Petun

From A.D. 1615 to A.D. 1649, first the Récollets and then the Jesuits were in constant contact with the Hurons and, to a lesser degree, the Petuns. The sources relied upon most heavily are the *Jesuit Relations* (Thwaites, 1896–1901), the journal of Gabriel Sagard-Théodat (1632), the compiled works of Fr. Jean de Brébeuf (Besterman, 1938), the journals of Samuel de Champlain (Biggar, 1929), and the excellent compilations and evaluations of W. Vernon Kinietz (1940) and the Rev. A. E. Jones (1909). Although it is not possible to exploit the full potential of the preceding references and allied documents within the scope of the present work, certain documentary data can be used to clothe the archaeological framework. These data will be largely concerned with social structure, economics, and material culture.

As has been stated earlier, the Hurons were composed of four clans, the Bear, Cord, Rock, and One-White-Lodge; and the Petun consisted of the Wolf and Deer clans. A brief reference to the Bear and Cord clans stating that they called each other 'brother' and 'sister' suggests that exogamous moieties were present. In a preceding speculative reconstruction it has been suggested that the clans of the Huron and Petun can possibly be identified with archaeological units (Northern and Southern divisions and the fusion of the two) and that the historic distribution of the Hurons and Petuns was established by late prehistoric and early historic movements of clan villages. It has been stated by Sagard that Huronia was divided into several provinces with a chief in command of each province. These provinces or territories are designated by clan names, and frequent references are made to the country of the Bear clan or the villages of the Rock clan. Dr. William N. Fenton (1951), in his ethnological research on the Five Nations, states that the clan village, with its emphasis upon locality and kinship groups, is a basic concept among the League members and that clan village autonomy could assert itself with disastrous effects even within the League. It is further mentioned that rights and obligations are closely tied to locality and that "The maternal family and the clan are synonymous to the extent that local clansmen can relate themselves genealogically to a distant matriarch" (*ibid.*: 44–45). Also, it is stated that the recurrent themes of Mohawk, Onondaga, Oneida, Seneca, and Cayuga society are the village, the headman, and the council of elders. All these ethnological features of recent Iroquois society are reflected in the ethnohistoric accounts on the Huron. For example, affairs of state and affairs of war were separated, and each was administered by a number of hereditary or elected captains. At the same time the society was rankless. Important matters were voted upon by the council with the various captains attempting to sway the vote in their favour. The loose confederacy formed by the semi-autonomous, matrilineal, clan villages of the Huron and Petun was ill-suited to face a concerted and determined attack as was demonstrated by the events of A.D. 1649. Paradoxically, the strong Iroquois tradition of clan village autonomy, which was probably the determining factor in the destruction of the Ontario Iroquois, was also the weak link in the organization of the League and continually caused altercations and, at times, threatened to destroy the League.

The subsistence of the Huron and Petun hinged on one item—corn. Beans, squash, sunflower, and wild vegetable and animal foods were definitely of a supplementary nature by the historic period and probably had been so for a substantial number of years. With reference to corn, Sagard (Kinietz, 1940) has stated that "this is the soup, the meat, and the daily food, and there is nothing more to expect for the repast; even when they have a little meat or fish to distribute among them (which rarely happens, except at the time of hunting or fishing) it is divided and eaten first, before the soup or sagamite" (*ibid.*: 141) and "that was the reason why going alone sometimes from one village to another I usually lost my way in these cornfields, more than in the prairies and forests" (*ibid.*: 122).

Corn was also the major item traded to the Algonkians in exchange for skins. The Hurons appear to have been great traders with monopolistic trading rights being recognized for certain families and clans. Indeed, the middleman role of the Hurons, with regard to the fur trade, has been given as the major reason for their destruction by the League (Hunt, 1940). Each household apparently grew all the corn it needed and a surplus for trading purposes. Women planted, tended, and harvested the field crops with the exception of tobacco, which was the responsibility of the men. The success of Huron agriculture is reflected in the statements of Champlain, Sagard, and Brébeuf, who estimated the population from eighteen to twenty-five villages of 30,000 'souls.' This figure is not excessive when it is recalled that the Rock clan village of Cahiague covering 25 acres was reported by Champlain to contain 200 large dwellings which could account for as many as 5,000 people. Add the estimated population of 15,000 for the ten Petun villages, and the historic population of the Huron-Petun branch comes to 45,000.

These large village sites were moved every ten to twenty years because of soil exhaustion and scarcity of fire wood, although the latter reason was probably the predominant one. Indeed, the major task of women was the gathering of wood, which far exceeded their other duties of farming, tending house, spinning hemp, and making baskets, mats, and pottery. Occasionally some villages were occupied for longer periods. Cahiague, for example, was visited by Champlain in A.D. 1615 and was not abandoned until A.D. 1648 when it was under threat of attack. The actual houses and palisade were constructed by the men, who also made canoes, nets, and weapons, and hunted, fished, traded, warred, and tended the tobacco fields. Data on the longhouses suggest that they ranged from 11 feet to 212 feet in length and were 21 feet in width and 21 feet in height. Brébeuf states,

> "These huts or bowers are to be found in various sizes, some two brasses in length, others ten, and others twenty, thirty, and forty; the ordinary width is about four brasses, and their height is about the same. There are no different stories; no cellar, nor room, nor garret is to be seen here. There is no other window or chimney than a wretched hole at the top of the hut, which is left in order to clear away the smoke" (Besterman, 1938: 35).

The following quotation from Champlain enlarges upon certain features of the longhouse and largely duplicates Sagard's statements.

> "Their lodges are fashioned like bowers or arbours, covered with tree bark, twenty-five to thirty fathoms long, more or less, and six wide, leaving in the middle a passage from ten to twelve feet wide which runs from one end to the other. On both sides is a sort of platform, four feet in height, on which they sleep in summer to escape the annoyance of fleas of which they have many, and in winter they lie beneath on mats near the fire in order to be warmer than on top of the platform. They gather a supply of dry wood and fill their cabins with it, to burn in winter, and at the end of these cabins is a space where they keep their Indian corn, which they put in great casks, made of tree-bark, in the middle of their lodge. Pieces of wood are suspended on which they put their clothes, provisions and other things for fear of mice which are in great numbers. In one such cabin there will be twelve fires, which make twenty-four households, and there is smoke in good earnest, causing many to have eye troubles, to which they are subject, even towards the end of their lives losing their sight; for there is no window nor opening except in the roof of their cabins by which the smoke can escape . . . . This is the shape of their dwellings, which are separated from one another about three to four yards for fear of fire which they greatly dread" (Biggar, 1929: 122–125).

The fear of fire appears to have been justified, for Brébeuf records two Huron Villages being destroyed by fire and another severely damaged in a single year. Brébeuf also states that one lodge, usually that of the headman, is larger than the rest and is used as a dance and feast centre.

The ethnohistoric accounts of Huron palisades are slightly contradictory. Sagard's description appears to be closest to the archaeological reconstruction. He states that the palisade consisted of three rows of stakes interlaced into one another and lined inside with thick bark to a height of 8 to 9 feet. At the base of the stakes large trees were placed lengthwise. Watchtowers were located on top of the palisade and were provided with stones for ammunition and water to put out fires. The gates were closed with bars. In general, the enclosure was circular with the cabins placed in the centre. It is further stated that only the larger, or border, villages were palisaded and that defensible sites were sought.

A full description of an ossuary burial or the 'Feast of the Dead' is available (Kidd, 1953). References to cannibalism among the Huron are frequent and substantiate the finding of fragmented and scorched human bones in site middens. It is also mentioned that fishing was of greater importance to the Huron than hunting and that dogs were used as food during banquets. Tattooing is stated to have been prevalent among the Huron and Petun men, particularly the Petun. Information on religion suggests that the False Face Society was also present among the Huron (*Jesuit Relations*, 1637: 263). The lunar calendar was used, and the world was believed to be supported on the back of a turtle. Each individual possessed a name soul and an ethereal soul. Dreams were used to interpret the supernatural. The three major supernatural units were Yoscaha and his grandmother Ataensiq, who were in opposition and represented the forces of good and evil, the oki or spirit power, and the host of independent spirits.

In the preceding, and necessarily brief, examination of the ethnohistoric data on the Huron and Petun, a close kinship can be seen between these two tribes and the ethnological information available on the Five Nations Iroquois of New York State. It would, therefore, appear from the evidence of ethnology, archaeology, and linguistics that the Iroquois of the Northeast shared a basically similar culture pattern and that this pattern had deep roots, as seen in the Ontario Iroquois Tradition and the other two traditions of a Northeastern Iroquois co-tradition.

THE NEUTRAL-ERIE BRANCH

The Neutral-Erie branch retains a closer relationship to its Middleport antecedents than was the case with the Huron-Petun branch. These relationships may be seen in the changing pottery type sequences as well as the lithic, bone, and other ceramic traits. MacNeish (1952) has demonstrated this continuity for southwestern Ontario as have Guthe (1958) and White (1961*a*) for southwestern New York.

The problems involved in delineating the areas occupied by the Neutral, Erie, and Wenro by means of the historic records have been thoroughly examined by Marian E. White (1961*a*: 21–31). Her conclusions are as follows: The Neutral occupation of southwestern Ontario had several villages east of the Niagara River at approximately A.D. 1630–1645; the Wenro, until A.D. 1638 occupied the area between the Niagara River and the Genesee River; the Erie occupied the area between Buffalo and Cattaraugas Creek until roughly A.D. 1644, after which time they moved inland; and after A.D. 1655 the Neutral, Wenro, and Erie no longer occupied the Niagara Frontier of southwestern New York State. White, with justifiable caution, states that no village of the Niagara Frontier can, as yet, be definitely assigned to a Neutral, Wenro, or Erie authorship since these three tribal groups may have overlapped in their areas of occupation. A further complicating factor is the apparent common ancestry of the groups under consideration, which limits the number of differentiating traits.

In this report, the Wenro are not considered. They were a small group, probably occupying no more than two villages, and appear to represent an isolated development from the same branch which gave rise to the large Neutral and Erie tribal groups. Both the marginal nature of the Neutral occupation of southwestern New York and the available evidence on historic Neutral sites in southwestern Ontario favour the assignment of the New York sites to an Erie authorship. The fact that Middle Ontario Iroquois stage sites, such as Oakfield, McGee, and Kienuka (White, 1961*a* and *b*), Westfield, McCullough, and Burning Spring (Guthe, 1958), were present in southwestern New York and were interacting with the Monongahela complex to the south (Guthe, 1958) suggests a possible base of origin for the Erie. It is thus proposed that Middle Ontario Iroquois stage sites in southwestern New York were partially isolated from their original homeland in southwestern Ontario by the Niagara River and were subjected to influence from the Monongahela complex. These partially isolated sites receiving influences from the south are thought to have evolved into the historic Erie. On the other hand, the historic sites in southwestern Ontario, which lack the clear evidence of Mississippian influence out of the south, are regarded as the historic Neutral. Such a designation of historic Neutral and Erie locales may be regarded as arbitrary. However, there do exist two clusters of related historic sites; one in a restricted area of southwestern Ontario and the other in a restricted area of southwestern New York State. The location of these two clusters of sites corresponds approximately with the historic location of the Neutral and Erie. Although the historic records do not allow the actual pinpointing of historic Neutral and Erie sites, and the presence of the Wenro adds another variable, these two factors are not regarded as sufficient reason to prevent the application of the terms 'Neutral' and 'Erie' to the two major clusters of sites under consideration. The Neutral and Erie were both large historic Iroquois tribes, and the two concentrations of historic sites correlate roughly with the historically documented locations of the two tribes.

Information on the Neutral-Erie branch is not nearly so complete as the data on the Huron-Petun branch. If I am correct in regarding the majority of the sites in New York as Erie and those in Ontario as Neutral, then the information is far more complete on the Erie than it is on the Neutral. Known historic Neutral sites have either been incompletely reported upon; or, no work at all has been done on them other than to record their location. It is hoped that this situation will be rectified in the near future.

The Neutral Division

Data on the Neutral division are largely drawn from the Lawson, Southwold, Donovan, Sealey, and Walker sites. The Lawson and Southwold sites are both prehistoric and are located close to one another in central southwestern Ontario. The Donovan, Sealey, and Walker sites are historic and are located between the Grand River and the western end of Lake Ontario. A complete site and artifact description (Wintemberg, 1939) and a rim sherd seriation (MacNeish, 1952) are available for the Lawson site. Only a rim sherd seriation has been done on the Southwold site (MacNeish, 1952). Site and artifact descriptions are available for the Donovan, Sealey, and Walker sites (Ridley, 1961). Rim sherd seriations are also present, but they do not follow MacNeish's types, with the exception of Ripley Collared and Genoa Frilled, and therefore they cannot be integrated into the present study. It was impossible to reinterpret a number of Ridley's types in terms of MacNeish's types as they appeared to represent combinations and minor variations of MacNeish's pottery types as well as some new varieties.

The Lawson site is located on five acres of a defensible plateau and is surrounded by an earthwork and palisade and flanked on one side by the Medway River and on the other by a small creek. Numerous circular refuse pits were encountered as well as the usual midden deposits. From the myriad of rather diagrammatic posts (Wintemberg, 1939, Figure 3) it is possible at a very tenuous level to reconstruct a rectangular longhouse measuring 87 feet by 18 feet and containing two large central hearths and ten circular pits. The mass of interior posts does not conform to a pattern. This structure is inferred from Wintemberg's site plan and was not recognized by the excavator. As such, there is a very real element of error involved in the reconstruction. Corn, beans, and sunflower seeds were recovered from the pits and middens. Cannibalism appears to have been extensively practised by the inhabitants of the site. "Over five hundred scattered bones of adults and children, most of them adults, were found in nearly every part of the site, in many cases associated with bones of food animals" (*ibid.*: 58).

Also, two human fibulae and a tibia had been modified for some unknown function, and five human skull gorgets were reported. The occasional bundle burial and a possible flexed burial were found within the confines of the village. A series of Whittlesey focus sherds were found in direct association with the major complex at the site and appear to be indicative of prehistoric contact between Whittlesey people of extreme southwestern Ontario (Lee, 1958*b*) and the Neutrals of the Lawson site.

There are no data on the Southwold site other than the fact that an earthwork surrounds the village.

The Donovan site is approximately one acre in extent and is located near a number of springs. No other feature data are available.

The Sealey site occupies seven acres of a plateau flanked on two sides by stream-cut ravines. A nearby ossuary, measuring 9 feet by 15 feet and 4.5 feet deep, produced an abundance of grave goods as well as the usual disarticulated skeletal remains. Isolated graves containing bundle burials have been reported from the site.

The Walker site is encompassed on three sides by a small stream and covers approximately fifteen acres. As many as eleven ossuaries and a number of individual graves have been found in and around the site. The ossuaries contained from two to seventy individuals and were elaborately furnished with grave offerings.

The comparison of the rim sherds for the prehistoric Southwold and Lawson sites can be seen on Table 20, Part II of the Appendix. The combined percentages of the Lawson Incised, Lawson Opposed, Niagara Collared and

Pound Necked pottery types account for 81 per cent of the rim sherds at the Southwold site and for 94 per cent of the rims at the Lawson site. On both these sites the Lawson Incised type represents approximately half the rim sherds. The high representation of the Pound Necked type and the lower frequency of the Ontario Horizontal type reflect the Middleport antecedents of the sites. With reference to the historic Donovan, Sealey, and Walker sites (Ridley, 1961), if one equates certain of Ridley's types with those of MacNeish, and this seems justified, a rough comparison between the prehistoric and historic components of the Neutral division is possible. Ridley's Neutral Incised, Neutral Trianguloid, and Neutral Plain are equated respectively with MacNeish's Lawson Incised, Lawson Opposed, and the combination of Niagara Collared and Ripley Plain. The combined percentages of these four types at the Donovan, Sealey, and Walker sites are 49 per cent, 54 per cent, and 50 per cent, as opposed to 74 per cent at the Southwold site and 85 per cent at the Lawson site. Earlier types such as Pound Necked and Ontario Horizontal appear to be absent, and some new varieties such as Neutral Punctate and Neutral Floral Punctate (Ridley, 1961: 38 and 40) are present. Also, if Neutral Nicked Lip (*ibid.*: 40–41) can be equated with Dutch Hollow Notched (MacNeish, 1952: 43), then this late Seneca pottery type has achieved an appreciable representation at the Sealey and Walker sites. It would appear that Lawson Incised, Lawson Opposed, and Niagara Collared represent the dominant pottery types of the Neutral division. These three types, however, are also dominant in the Erie division.

The coefficient of similarity between the Southwold site and the Lawson site (Chart 7, Part III of the Appendix) is 171. This represents a very high degree of relationship between these two sites, which appear to be very close to one another in time as well as space. It was not possible to establish coefficients of similarity for the Donovan, Sealey, and Walker sites.

Body sherds are predominantly plain although the scarified and cord malleated techniques are present at the Lawson site, and the cord malleated and incised body sherds have been recovered from historic Neutral sites.

The dominant pipe varieties in the early portion of the Neutral sequence are Iroquois ring, plain trumpet, and various effigy forms. By the historic period, however, the acorn pipe is dominant, and the coronet, ring stem trumpet, and different effigy forms are present.

At the Lawson site nearly all the castellations were pointed with only several examples of the turret variety present. By the historic period the simple pointed variety is still dominant although turret and bifurcated or notched varieties have an appreciable representation.

Common bone traits at the Lawson site were antler tine chisels, worked beaver incisors, cylindrical antler flakers, awls, bird bone beads, beads made from the distal end of deer phalanges, and the cup-and-pin game variety of worked deer phalange. By the historic period the cylindrical antler flaker, bone bead, awl, and cup-and-pin game deer toe bone are still common, and the antler tine chisel, worked beaver incisor, and beads made from the distal end of the deer phalange are absent or much reduced in frequency. New, or more frequent, bone traits are large bone tubes, flutes, netting needles, combs, harpoons, and perforated antler tools (the so-called arrow shaft straighteners). A rare bone trait, but a significant one, is the human skull gorget which is present at Lawson and continues into the historic period.

In the early portion of the sequence, both isosceles triangular and side-notched triangular projectile points are found. By the historic period the side-notched variety of triangular point has disappeared. Large, crude end scrapers are relatively abundant throughout the sequence and differ in quality and quantity from the end scrapers noted in the Huron-Petun branch. Polished stone adzes are plentiful. Anvil stones, whetstones, and stone pendants (including the slate pebble pendant) are fairly common at the Lawson site but are not recorded for the historic Neutral sites. The use of catlinite for beads only appears during the historic period, as was the case with the Huron-Petun branch. Marine shell beads occur at the Lawson site but are more common on the historic sites along with shell pendants. Notched netsinkers, which are fairly abundant at the Lawson site, do not appear to be present on the historic sites.

Traits which are present at the prehistoric Lawson site but appear to be absent from the historic Neutral sites are earthworks, the Pound Necked and other early pottery types, side-notched isosceles projectile points, notched and perforated netsinker varieties, slate pebble pendants, antler tine chisels, worked beaver incisors, and beads made from the distal end of deer phalanges.

Traits present on the historic Neutral sites but absent from the Lawson site are the pottery types Neutral Punctate and Neutral Floral Punctate, the acorn ring, coronet, and ring stem trumpet pipes, catlinite beads, bone flutes, and unilateral single barbed harpoon with or without a line hole.

The Erie Division

With some reservations the late prehistoric and historic sites of southwestern New York are attributed to the Erie division of the Neutral-Erie branch. As has already been mentioned, these assumed Erie sites are thought to have evolved *in situ* from Middle Ontario Iroquois stage sites in southwestern New York, such as Oakfield and Kienuka (White, 1961*a*) and Westfield, McCullough, and Burning Spring (Guthe, 1958). All the sites possess earthworks and numerous pits with the exception of the Kienuka site. Earthworks have not been noted in contemporaneous sites in Ontario. Also, the New York sites, and particularly those to the south, show strong Monongahela influence. As in Ontario, most of the sites appear to have practised ossuary burial although flexed burials were found at the Burning Spring site. This *in situ* development of the Erie from a Middle Ontario Iroquois base was first proposed by Guthe (1958: 67):

> "The information presented herein indicates that the material referred to as Erie is not only the result of an Iroquois group moving into that area during proto-historic times. It indicates that this area has been occupied, or visited, by people from Ontario over a much longer period of time. Thus the Ripley site represents a development of a mixture of the Monongahela Complex and Neutral traditions."

The sites to be compared are Ripley, Green Lake, Goodyear, Eaton, Buffam, and Shelby, with additional data from the Silverheels site. Of the preceding sites, Shelby, Buffam, and Eaton are prehistoric, and the rest are assignable to the historic period. The Buffam, Eaton, Goodyear, and Green Lake sites are clustered to the east of the northeast end of Lake Erie whereas the Ripley and Silverheels sites are farther to the south along the shoreline of Lake Erie. The Shelby site tends to be isolated and is located on the Lake Ontario drainage rather than on the Lake Erie drainage, which characterizes the rest of the sites.

There is a complete site and artifact description (Parker, 1907) and a rim sherd seriation (MacNeish, 1952) for the Ripley site. Site descriptions and pipe and projectile point data (White, 1961*a*) and rim sherd seriations (MacNeish, 1952; White, 1961*a*) are available for the Shelby, Buffam, Eaton, Goodyear, and Green Lake sites. For the Silverheels site (Guthe, 1958) there is a site description as well as some artifact data.

The Ripley site is situated on a low knoll bordering the Lake Erie shore and flanked on two sides by streams. Evidence of a circular earthwork was encountered as well as a nearby cemetery. Numerous circular and ovate refuse pits were present in addition to the usual midden deposits. The 107 graves in the cemetery contained flexed burials, which were richly provided with grave goods. A number of 'empty graves' and a single bundle burial suggested the possible existence of an ossuary burial. Corn, beans, and squash were found scattered in the middens, pits, and burials. On the basis of the white trade items found, the Ripley site was probably occupied some time early in the 17th century.

The Shelby site covers three and a half acres of level ground near a small stream. A circular, double earthwork surrounds the village. Pits, refuse middens, and a cemetery have been discovered within the confines of the earthwork. A possibly associated ossuary is reported to be 1½ miles distant from the site.

The Buffam site is located in the city of Buffalo on a plateau overlooking a stream valley. Over three acres were occupied, and the village was surrounded with an earthwork. MacNeish (1952: 10) has attributed this site to the historic Neutral village of Ondieronii, but White (1961*a*: 58) has questioned this identification as no white trade goods have been recovered from the site. Only midden deposits have been found, and a cemetery is reported to be nearby.

The Eaton site occupies a little over two acres of a small knoll bordering a creek.

The Goodyear site occupies nearly six acres of a bluff protected on three sides by stream-cut ravines. A number of middens are present as well as refuse pits. Several graves have been discovered. The white trade items from the site place its occupation close to the turn of the 17th century.

The Green Lake site occupies from three to five acres of a low knoll close to a small creek. Both middens and burials have been found on the site. The white trade goods found would place its occupation late in the 16th century or early in the 17th century.

The Silverheels site is located on the point of a plateau overlooking the floodplain of a stream. The base of the point has been closed with an earthwork, and evidence of a palisade was also encountered. Numerous refuse and burial pits were found on the site. Flexed, extended, bundle, and ossuary burials were practised. From the abundant trade goods it would appear that the major occupation took place during the first half of the 17th century. Guthe (1958: 51) has suggested that more than one component is present on the site.

The rim sherd comparisons for six of the preceding sites are given on Table 20, Part II of the Appendix. Before proceeding to the comparisons, however, a discontinuity between MacNeish's and White's seriations must be considered. As can be seen from the table, there is a high incidence of the Huron Incised pottery type in White's analysis of the Shelby, Buffam, Eaton, Goodyear, and Green Lake sites; and a low incidence of the same type in MacNeish's analysis of the Southwold, Lawson, and Ripley sites. In addition, White and MacNeish both did a separate rim sherd analysis for the Buffam and Goodyear sites. These analyses correspond closely except for the high frequency of Huron Incised in White's analysis and the low incidence of the same pottery type in MacNeish's analysis which possessed a corresponding higher frequency of the Lawson Incised and Lawson Opposed types. It seems to me, therefore, that White and MacNeish must have been using slightly different criteria for separating the Huron Incised type from the Lawson Incised and Lawson Opposed types and that White has placed a number of sherds within the Huron Incised type that MacNeish would have placed within the Lawson Incised or Lawson Opposed pottery types. Since the Huron Incised type is separated from the Lawson Incised and Lawson Opposed types on the basis of rim profile (the former possesses a convex interior and the two latter types possess concave interiors), it is probable that the contradictions within the separate analyses of White and MacNeish stem from differences in the individual interpretation of the terms 'convex' and 'concave.' It was felt necessary to review these disparities, particularly concerning the dual analyses of the Buffam and Goodyear sites, in order that differences in analysing observations should not establish greater differences between sites than actually exist. Even with the inclusion of these variations in analysis it can be seen that the six sites under consideration bear a relatively close relationship to one another. Lawson Incised, Lawson Opposed, Niagara Collared, Ripley Plain, and Huron Incised are the dominant pottery types of the Erie division, and their combined frequencies always account for more than half the rim sherds at a site. Middleport antecedents can be seen in the presence of such types as Ontario Horizontal and Pound Necked.

The coefficients of similarity are given on Chart 7, Part III of the Appendix. All the sites have fairly high coefficients with the exception of the Ripley site, although this site does have a relatively high coefficient with the historic Goodyear site. Until the problem of separating the Huron Incised from the Lawson Incised and Lawson Opposed types is resolved, specific statements on the relationship of these sites are limited.

White's chronology (1961*a*: 106) of five of the preceding sites, running from early to late, is Shelby, Buffam, Eaton, Goodyear, and Green Lake. The Ripley site would be roughly contemporaneous with the Green Lake site, and the Silverheels site would be latest in the sequence. The following positive ceramic features were noted for the Shelby, Buffam, Eaton, Goodyear, and

Green Lake sites by White (1961*a*: 120): incised decoration on over 80 per cent of rims; over four-fifths of the vessels possess collars; the horizontal motif occurs on less than 3 per cent of the rims; oblique or vertical motifs occur on more than half of the rims; approximately 15 per cent of the castellations are of the square variety (turret); and neck decorations are virtually absent.

In referring to the relationship of the Niagara Frontier sites to the more southerly sites of southwestern New York, White states, "There is a noticeable similarity of pottery and other artifacts in the two areas. The outstanding difference is the higher proportion of shell-tempered and roughened vessel bodies on pottery in the south" (1961*a*: 129).

Body sherd data are incomplete in White's analysis, although the cord-impressed technique is present except at the Green Lake site. Grooved paddle and checked stamp are present but of low frequency. The general trend from early to late appears to be the increase of plain surfaces. At the Ripley site "Most of the pots have smooth surfaces although many were found marked with a cord-wrapped paddle" (Parker, 1907: 539–40).

Castellation varieties within White's sequence show an increase of the squared or turret variety from early to late at the expense of the pointed variety. Rounded or incipient pointed castellations are well represented and have a constant frequency through time. The bifurcated variety has a low and erratic distribution.

Major pipe varieties are the acorn ring bowl, decorated rimmed trumpet, coronet, and effigy varieties. The samples are too low to suggest the chronological significance of these pipe varieties although the acorn ring appears to be late and the decorated rimmed trumpet and coronet occur throughout the sequence.

Common bone traits noted at the Ripley site are awls, beads, carnivore canine pendants, toggle and cup-and-pin game deer phalanges (the latter of a different variety from those found in the Huron-Petun branch or early Neutral division), beaver incisors, cylindrical flakers, and antler chisels.

Shell traits from the same site consisted of disc beads, rectangular incised plaques, and circular gorgets.

Projectile points throughout the Erie division are of the isosceles triangular variety. Other lithic traits noted at the Ripley site are notched and unnotched biface blades, end scrapers, netsinkers, manos, mortars, bipitted anvil stones, hammerstones, and chisels.

There is very little ethnohistoric information on the Neutral and Erie as both tribes were destroyed prior to significant white contacts. What data are available, however, suggests that both were very similar to the Huron and Petun, and many of the general statements made for these tribes almost certainly apply to the Neutral and the Erie.

SUMMARY

The Late Ontario Iroquois stage has been based upon the study of two related cultural developments taking place in southeastern Ontario and in southwestern Ontario and New York. Both sequences stemmed from a common Middleport substage base; one terminated in the Huron and Petun, the other developed into the Neutral and Erie. The chronological events involved in both these branches have, for the most part, been traced by pottery types. Other sources of data, however, have been used when available. By means of the direct historical approach and a common horizon base, a considerable degree of control over the 200 pre-contact years of the Late Ontario Iroquois stage is possible. While the amount of information available for the two branches is variable, it exceeds that of the preceding two stages. In the Huron-Petun branch, for which there is an abundance of data, two closely related but geographically separated divisions were developing in a parallel fashion. Along the north shore of Lake Ontario and moving up the major river valleys is the Southern division, and located to the north in Huronia proper is the Northern division. Some time during the latter half of the 16th century the two divisions fuse to create the complex shared by the historic Huron and Petun. The oral traditions of the Huron add support to the inferred archaeological events. Information on the Neutral-Erie branch is more limited than that for the Huron-Petun branch, and particularly so with regard to the Neutral division. The data, however, do appear to be sufficient to infer the major sequence of events involved in both divisions. These are the *in situ* developments out of a Middleport base of the Neutral in southwestern Ontario and the Erie in southwestern New York. From the prehistoric period to the historic period the Neutral appear to have shifted to the east to take up residence around the western end of Lake Ontario. Contrary to the opinions of Lee (1956: 187) and Ridley (1961: 61), not all the historic Neutral sites are located east of the Grand River. A survey carried out by Mr. George F. MacDonald for the National Museum encountered historic sites to the west of this river (MacDonald, 1961: manuscript on file in the National Museum of Canada). This, however, does not negate the gradual shift of population from central southwestern Ontario to the eastern portion of southwestern Ontario, which is apparent in the Neutral division. In the case of the Erie, the shift in population appears to have gone from the Niagara Frontier proper to the south shore of the eastern half of Lake Erie.

A number of general similarities can be seen between the two branches. In general, both peoples occupied large, palisaded villages set in defensive positions distant from navigable waters. Subsistence was based upon corn agriculture with the supplementary crops of beans and squash. Hunting, fishing, and gathering still contribute to the food supply but to a far lesser degree than noted in the earlier stages. Cannibalism and the use of the dog as a food animal appear to reach their peak around the first half of the 16th century. Ossuary burial becomes the accepted way of disposing of the dead although the Erie still practise individual flexed interment in cemeteries. The material culture of both branches are comparable and consist of elaborate ceramic and bone complexes but a weak lithic assemblage. Also, in both branches the pottery types trend from complex to simple while the pipe complex goes from simple to complex. In both branches of the historic period the abundance of exotic material (catlinite, marine shell beads) is indicative of wider trade relations. At the same time, a number of general and specific differences can be seen between the two branches. A greater reliance upon fishing and particularly hunting can be seen in the Neutral-Erie branch. The ossuary pits of the Neutral division differ structurally from those in the

Huron-Petun branch. After the Neutral ossuary pit was excavated, it was lined with a smooth layer of clay; then the bones were deposited in the usual disarticulated fashion. In two instances (Ridley, 1961), bones were placed in the clay-lined pit, and a second layer of clay was placed over the bones; a second deposit of bones was then placed on this clay lining. Finally, there are a great number of quantitative and qualitative traits and types which allow a clear separation of the two branches.

Separating the divisions of the respective branches is, of course, a more specific matter than separating the two branches. With reference to the Huron-Petun branch it was stated that the high frequency of the Lalonde High Collar pottery type in the Northern division was the simplest means of separating Northern division sites from Southern division sites. Differences in house patterns may also be useful, but more comparative data are needed. In addition, there is a restricted number of quantitative and qualitative traits which may be used to separate the two divisions. In differentiating historic Huron and Petun sites it was suggested that the high frequency of the Sidey Notched pottery type on Petun sites and an equivalent frequency of the Warminster Crossed pottery type on Huron sites may be used as rough separating agents. By examining Chart 6, Part III of the Appendix, the degree of homogeneity, as reflected by pottery types, can be seen between Southern division, Northern division, and Fusion sites of the Huron-Petun branch. It may be noted that the Copeland site of the Northern division has an approximately equal degree of relationship with both the Southern division and Fusion sites. The similarity of the Copeland site to the sites of the Southern division is felt to stem from the similar development of the two divisions from a common Middleport base as well as from continued contacts between the two divisions. On the other hand, the similarities between the Copeland site and the Fusion sites are thought to reflect the later blending of the two divisions. With reference to the Neutral-Erie branch, it has been suggested that the spatial locations of the two divisions and the evidence of Monongahela influence on the Erie division are the two general means of separating the divisions. The use of Monongahela influence as a simple means of separating the divisions is hazardous. For example, the sites of the Niagara Frontier possess far less evidence of Monongahela influence than do the sites farther to the south. This is, perhaps, understandable, but it still divides the sites of southwestern New York into two groups based upon the intensity of foreign influence. As can be seen on Chart 7, Part III of the Appendix, the components of the Neutral and the Erie divisions are very similar with regard to rim sherd types, and this similarity is also reflected in a number of general and specific traits. Earthworks are present at the prehistoric Lawson and Southwold sites of the Neutral division and the prehistoric Shelby and Buffam sites of the Erie division. By late prehistoric and historic times, however, the earthwork has disappeared from the Neutral division and the Erie division sites of the Niagara Frontier. Farther to the south, however, historic Erie division sites like Ripley and Silverheels retain the use of earthworks. There are also a substantial number of common quantitative and qualitative traits and types which make a clear separation of the Neutral and Erie divisions difficult on the basis of artifacts alone.

The Late Ontario Iroquois stage is terminated with the destruction of the Huron, Petun, Neutral, and Erie between 1649 and 1654 by the League. Although destroyed as independent tribes, the majority of the defeated peoples apparently were adopted by their close kinsmen in the Five Nations. In this sense, a cultural development was destroyed and not a people.

CHAPTER SIX

Conclusions

The Ontario Iroquois Tradition, covering a period of over 650 years and terminating in the historic Huron, Petun, Neutral, and Erie, is proposed as a framework within which the pertinent archaeological complexes of Southern Ontario and southwestern New York can be integrated in a meaningful way. The tradition has been divided into three stages on the basis of the major cultural processes apparently involved. These stages which have been called Early Ontario Iroquois, Middle Ontario Iroquois, and Late Ontario Iroquois, represent in terms of cultural process, the convergence stage, the horizon or fusion stage, and the divergence stage of the tradition.

The Early Ontario Iroquois stage is divided into the Glen Meyer branch of southwestern Ontario and the Pickering branch of southeastern Ontario. Both branches possess relationships with adjacent and contemporaneous foci of the Owasco aspect in New York State as well as with other, as yet, little known complexes. Although it may eventually be possible to trace both of these branches to a Middle Woodland base, the evidence is presently too limited to convincingly demonstrate such a development, and the support for the Middle Woodland origin hypothesis still rests largely on negative evidence. In addition to the apparent relationships between the Glen Meyer and Pickering branches and adjacent complexes, shortly to be discussed, there was also a considerable interplay between the two branches. For example, part way through the Pickering branch sequence, at the time of the Boys site, there is evidence of substantial Glen Meyer branch influence. There is little evidence of reciprocity until the Pickering branch conquers and absorbs the Glen Meyer branch at the turn of the 14th century. While there are numerous differences between the two branches at the specific type and attribute level, there is a common cultural pattern with close correspondences to be seen in settlement pattern, burial practices, subsistence, and general quantitative artifact categories.

The Glen Meyer branch has usually been assigned to the Owasco aspect (MacNeish, 1952: 84; Lee, 1951: 45; 1952: 75), although Ritchie in his formulation of the aspect has opposed the inclusion of the Ontario complexes under the term Owasco (Ritchie, 1961*a*: 32). He states that "In Southern Ontario, later Point Peninsula developments seem to have proceeded along somewhat different lines, concurrently with Owasco developments in New York, to produce the earliest recognized Iroquois complex of that area, known as the Uren, believed by Wintemberg (1928, p. 51) to be proto-Neutral, and by MacNeish (1952, p. 87) to be in the line of development into Erie, Neutral, and Huron."

This Ontario cultural continuity from Middle Woodland to historic Iroquois is largely based on the stratified sequence from the Frank Bay site. Ritchie apparently feels that the Primary Transitional Stratum of this site is assignable to late Point Peninsula and that the Frank Bay Transitional Stratum is equatable with Glen Meyer. The latter conclusion stems from Lee's erroneous statement that the Boys and Barrie sites ceramics are "identical with that of the Glen Meyer Focus" (Appendix to Ridley, 1958*a*: 22). The assigning of the Primary Transitional Stratum (early Pickering branch in this report) to late Point Peninsula is, in my opinion, questionable. Although the dominant decorative technique in the Primary Transitional Stratum is dentate stamping, there is nothing else that really points to a late Point Peninsula authorship. In fact, there are a large number of non-Point Peninsula features in the Primary Transitional Stratum ceramics. They are as follows: anvil and paddle manufacturing techniques rather than coiling; rim profile configuration; the presence of bossing; the absence of rocker stamping (Point Peninsula Rocker Stamped represented 48 per cent of the rim sherd analysis from the Jack's Reef site, a late Point Peninsula station); plain surfaces as opposed to corded surfaces (only 18 per cent of the Jack's Reef site body sherds were plain).

As this report attempts to demonstrate, the Ontario Iroquois were derived from a bilineal fusion with subsequent divergence rather than a unilineal development which Ritchie proposes to call the Glen Meyer stage in place of the term 'Owasco.' The basic disagreement between Ritchie and the Ontario students regarding the term 'Owasco' appears to stem from the interpretation of 'aspect.' Ritchie tends to use the term in a more specific sense than the Ontario workers do. The scope of the term 'aspect,' or indeed any of the other categories of the Midwestern Taxonomic System (with the exception of component and, to a lesser degree, focus), is largely an individual matter with individual experience and orientation being reflected in the expanded or restricted use of the category. As such, the problem is a philosophical one and cannot be resolved in its present state, especially since the categories of the Midwestern Taxonomic System no longer possess recognized qualitative and quantitative limitations. Out of respect for Dr. Ritchie, many students in Ontario have used the term 'Owascoid' or 'Owasco-like.' Such formulations, it is felt, merely avoid the problem at hand. In the present report it was not necessary to use the term 'Owasco.' If it were necessary, however, I would still favour the placement of the Early Ontario Iroquois stage complexes within the Owasco aspect. This would be done on the basis of certain general, as well as specific, similarities between the Glen Meyer and Pickering branches and the Owasco aspect. In the following section, Owasco comparisons are drawn from the Canandaigua and Castle Creek foci (Ritchie, 1944).

General similarities seen between the Glen Meyer and Pickering branches of Ontario and the Owasco aspect of New York are as follows: first evidence of agriculture as a major element in the subsistence pattern; large, sedentary villages containing substantial house structures; villages located some distance from navigable water on small tributaries and frequently palisaded; burials occurring in and around the village with little or no grave goods; a weak and generally crude lithic industry; the obtuse angle stone or clay pipe; and certain general ceramic features such as paddle and anvil construction, elongate to semi-globular-shaped vessels with constricted necks and everted collarless or collared rims, and impressed exterior surface treatment.

Specific similarities seen between the Glen Meyer and Pickering branches and the Owasco aspect are represented by the following: predominance of the concave or straight base triangular projectile point; triangular and simple drills; polished stone adzes; bi-pitted anvil stone; native copper beads (rare); splinter bone awls; antler tine flakers; bone beads; worked turtle shell; cup-and-pin game deer phalange; twined fabric; and strong rim sherd type correspondences (Glen Meyer Oblique and Owasco Herringbone, Ripley Plain and Canandaigua Plain, Woodsmen Corded and Lavanna Cord-on-Cord, Scugog Classic minus bosses and Bainbridge Linear, and platted specimens of the Glen Meyer and Pickering branches and Owasco Platted).

General features in which the Owasco aspect differs from the Glen Meyer and Pickering branches are—a strong, well-developed bone industry; palisade with exterior ditch; apparently different styles of house structures; and single flexed burials as opposed to bundle burials.

More specific features in which the Owasco aspect differs from the Glen Meyer and Pickering branches are—the virtual absence of scrapers; the presence of polished stone axes; pestles; combination hammer-anvil-muller; netsinkers; stone discs; wide variety of bone traits; shell ornaments; pipe varieties; and the majority of the specific rim sherd types.

In addition to the preceding similarities and differences between the Early Ontario Iroquois stage and the Owasco aspect, the Glen Meyer branch possesses a number of similarities with the Krieger site near Chatham in extreme southwestern Ontario (Kidd, 1954). These correspondences are largely to be found in the pottery and pipes and are almost certainly expressive of a genetic relationship. In general, the Krieger site is an enigma in Ontario archaeology although the site does show relationships with the Monongahela aspect (*ibid.*: 176) and the Whittlesey focus of northern Ohio and Indiana and southern Michigan (Greenman, 1935; Morgan, 1952).

In light of new information it is necessary to re-examine the 'Owasco' stages of MacNeish's *in situ* theory (MacNeish, 1952: 87–89). The development of Owasco out of the Middle Woodland sequence represented by the Point Peninsula foci is still generally concurred in, although the absence of rocker and dentate stamping in the New York Owasco series (Ritchie, 1961*a*: 31) still presents problems of cultural continuity. While dentate stamping is a basic decorative technique early in the Pickering branch, major problems present themselves when one attempts to derive the complex from late Middle Woodland as it is presently known. The Glen Meyer branch is also of little assistance in bridging the gap between late Middle Woodland and early Late Woodland. There is some evidence suggesting the transition, but it is still extremely sparse.

MacNeish established four regional Owasco variants to support the *in situ* theory. These are located in eastern, north-central, and western New York, and in southwestern Ontario, and are thought to have given rise to the historic Mohawk, Onondaga-Oneida, Seneca-Cayuga, and Neutral-Erie-Huron, respectively. Data presented in this report suggest that the latter tribal grouping, or the Ontario Iroquois, was originally derived from the fusion of two complexes—the Glen Meyer branch and the Pickering branch. Therefore, rather than a unilineal scheme, a bilineal one is suggested. Radiocarbon dates and new seriational data from New York have presented problems regarding MacNeish's unilineal development from Wickham to Castle Creek to Bainbridge to historic Mohawk. The Getman site, a component of the late Chance horizon (Ritchie, 1952) of early Mohawk, has been dated at A.D. 1398 ± 150 (Ritchie, 1961*a*: 34). A date from the Bates site was A.D. 1298 ± 200 (*ibid.*). This latter site, on seriational evidence, appears to be earlier than the Castle Creek site of the Owasco aspect. Since the Castle Creek site produced two carbon dates of A.D. 1196 and A.D. 1435, the evidence from the Bates site suggests that the late Castle Creek date is most likely correct. Thus, the Bates site is, in Ritchie's words, "only 100 years earlier than the A.D. 1398 date that I just reported for the early Mohawk-Iroquois Getman site which, if the carbon-14 figures are reliable, would have been approximately contemporaneous with the Castle Creek site, hence the Castle Creek complex could hardly have given rise to early Mohawk, as is postulated by the current *in situ* hypothesis" (Ritchie, 1961*a*: 34).

In the face of such new evidence, Ritchie (1961*a*: 35–36) has proposed "two widely separated and discrete nuclear centers" for Iroquois cultural development. The western centre is located in Ontario; Ritchie's and my conflicting interpretations on this centre have already been presented. The sequence of the eastern centre located "in eastern, or northeastern New York and adjacent eastern Ontario" is less clearly understood "because of apparent discontinuities and suggestions of possible diffusion between two concurrently developing groups, one Owasco, the other Iroquois" (*ibid.*: 36).

In looking for similarities between the Ontario complexes and the Owasco aspect, it is interesting to note that the Glen Meyer branch possesses its closest correspondences with the Canandaigua focus of western New York, and the Pickering branch possesses its closest correspondences with the Castle Creek focus of eastern New York. These similarities are probably expressive of the spatial locations of the respective complexes. The rising index of checked stamped surface treatment in the Castle Creek, Bainbridge, Kelso sequence (Ritchie and MacNeish, 1949:120, figure 43; Ritchie, 1961*a*: 33) suggests an association with the Pickering branch, as does the occurrence of the Bainbridge Linear pottery type. These, and other associations, suggest that the Pickering branch was interacting with the eastern Owasco complexes as well as with the Glen Meyer branch to the west. The direction and intensity of these associations with the Castle Creek sequence are beyond my scope. Their presence, however, does suggest that the Pickering branch was involved in more than the development of the Ontario Iroquois. The Glen Meyer branch association with the Canandaigua focus tends to be of a general nature.

The Middle Ontario Iroquois stage is a direct product of the Early Ontario Iroquois stage and was created by the Pickering branch conquest and absorption of the Glen Meyer branch in southwestern Ontario and by the unbroken cultural development of the Pickering branch in southeastern Ontario. These processes resulted in a widespread, homogeneous complex called the Uren substage which covered much of Southern Ontario and a portion of southwestern New York. The Middleport substage evolved directly out of the Uren substage, with the addition of a fully developed pipe complex, apparently from the northeastern complexes which were to evolve into the

Mohawk, Onondaga, and Oneida. It was during the Middleport substage that the greatest degree of homogeneity was achieved by the Ontario Iroquois. Since the time span of the Middle Ontario Iroquois stage probably did not extend over one hundred years, this particular stage is regarded as a horizon cutting across the Ontario Iroquois Tradition.

The Late Ontario Iroquois stage represents the divergence of the Huron, Petun, Neutral, and Erie out of a common Middleport base. Two branches, the Huron-Petun and the Neutral-Erie, were involved. The Huron-Petun branch had two divisions—a Southern division located along the north shore of Lake Ontario and gradually moving up the major river valleys, and a Northern division located in Huronia proper between Nottawasaga Bay and Lake Simcoe. Both divisions developed *in situ* out of a Middleport base and thus bear certain basic similarities to one another. Also, the divisions did not develop in isolation of one another, and many of the close correspondences are probably due to culture contacts. With the northward shift of the Southern division into the homeland of the Northern division, a fusion took place which led into the historic Huron and Petun. The Neutral-Erie branch maintained a closer identity with the Middleport base from which it derived than did the Huron-Petun branch. The Neutral division developed directly out of this base in southwestern Ontario to terminate in the historic Neutral. It is proposed that the Erie division developed out of Middle Ontario Iroquois stage sites in southwestern New York and throughout the sequence was subjected to varying degrees of Monongahela influence from the south. In addition to the Monongahela influence on the Erie sites, there is evidence that the rather general Whittlesey focus in southern Michigan (Greenman, 1937; 1939) and extreme southwestern Ontario (Lee, 1958*b*) was exerting influence on prehistoric Neutral division sites in central southwestern Ontario. In general, it appears that the area occupied by southwestern New York, northern Pennsylvania, Ohio, and Indiana, southern Michigan, and extreme southwestern Ontario was receiving and transmitting strong influences from the southwestern portion of the Ontario Iroquois Tradition, the Fort Ancient aspect, the Monongahela aspect, and Woodland complexes in Michigan. Complexes marginal to the northern and eastern boundaries of the Ontario Iroquois Tradition are poorly known at this time. There is evidence to suggest, however, that the widely scattered Iroquois ceramics to the north and east of the Ontario Iroquois Tradition may, in part, represent Algonkian copies of Ontario Iroquois pottery types.

The major elements of Iroquois culture, as seen in the Ontario Iroquois Tradition, show significant trends through time. From the earliest period corn is present and represents the major crop throughout the sequence. Of equal antiquity is tobacco, but this plant does not appear to achieve a dominant position until A.D. 1350. By A.D. 1300, the sunflower had been added to the list of plant domesticates. It was apparently not until after A.D. 1400 that beans and squash appeared. Perhaps the different times of arrival of these domesticates reflect the various periods required to perfect a more rugged northern strain of the species. The large house structure, inferred as early evidence of matrilineal clans, was present by A.D. 1125. House structures apparently became larger in the Late Ontario Iroquois stage, but there was a wide range in size. A concern for defence characterizes the entire Ontario Iroquois Tradition. This is reflected by the location of villages distant from navigable water and frequently set in a naturally defensible position and palisaded. In the Pickering branch of the Early Ontario Iroquois stage and in the Middle Ontario Iroquois stage, numerous small camp-sites are to be found, and, in the latter particularly, the concern with defence appears to have reached its lowest level. Since the Middle Ontario Iroquois stage represents the period of greatest expansion and influence of the Ontario Iroquois Tradition, it is perhaps not surprising that defence has been neglected. This is reflected in the frequency of Middle Ontario Iroquois stage traits in all the other complexes of the Northeastern Iroquois co-tradition. By the late Ontario Iroquois stage, sites were larger and tended to cluster in groups. Also, the numerous camp-sites were markedly reduced. All this suggests that defence had become increasingly important. From the earliest period the bundle burial appears to have been the standard method of disposing of the dead. During the Early Ontario Iroquois stage, single or family (?) bundle burial in and around the village was common. By the Middle Ontario Iroquois stage small ossuary burial near the village, and probably representing the dead of that village, was the pattern. During the Late Ontario Iroquois stage the large ossuary, located a distance from the village and probably containing the dead of a number of villages of one clan, was present. The Erie, however, deviate from this pattern and practised flexed burial in cemeteries as well as ossuary burial. Cannibalism first appeared in the Middle Ontario Iroquois stage and possibly correlates with the increased hostilities engendered by the sudden expansion of the Ontario Iroquois. The practice survived to the historic period but appears to have reached a peak around the mid-16th century. One dog burial has been reported for the Ontario Iroquois Tradition, and this was from an Early Ontario Iroquois stage site. The dog, however, appears to have been used as a food animal throughout the Ontario Iroquois Tradition. The general pattern of the material culture of the Ontario Iroquois Tradition is constant through time. Ceramics dominate all other artifactual remains. The lithic complex is very weak, and though the bone assemblage is stronger, it is relatively insignificant in contrast to the ceramics. Pipes are crude and scarce throughout the Early Ontario Iroquois stage and the first half of the Middle Ontario Iroquois stage. By A.D. 1350 an elaborate pipe complex was introduced from the northeast, and from that period on, smoking became a dominant trait of Ontario Iroquois society. From early to late there is a tendency toward simplification of the motifs, decorative techniques, and surface treatment techniques of the pottery vessels. Evidence of significant trade relations between the Ontario Iroquois Tradition and distant peoples is absent until the historic period when catlinite and marine shell artifacts become relatively common. Throughout the development of the Ontario Iroquois Tradition one characteristic is dominant, and this is conservatism. There is little evidence of borrowing, even between adjacent and closely related groups. In short, the autonomous clan village, with its emphasis upon locality, appears to have been a dominant force throughout the Ontario Iroquois Tradition. Indeed, without the Iroquois cultural emphasis on conservatism and locality it is doubtful if the archaeological materials would have lent themselves to the

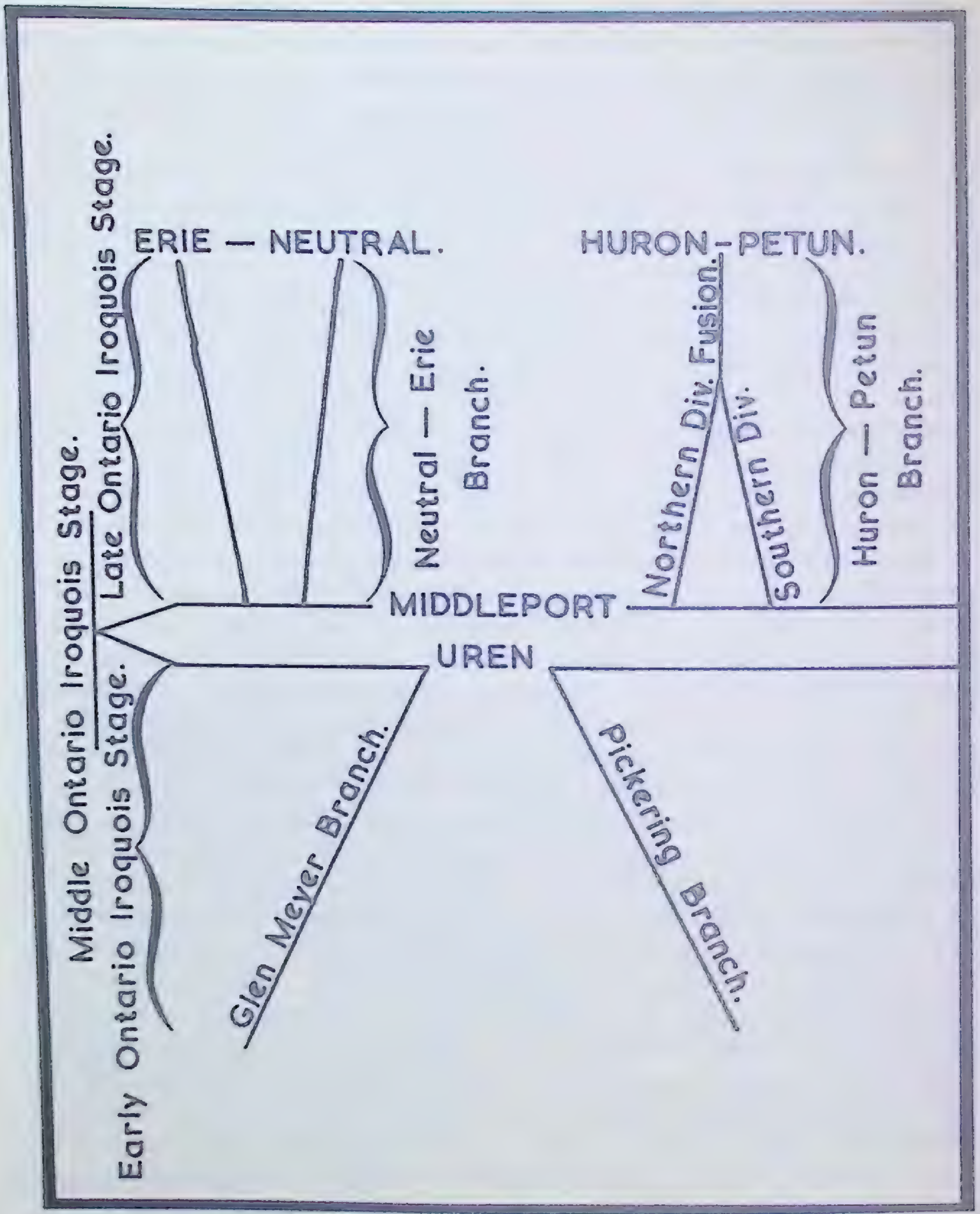


FIGURE 2—*Schematic presentation of the Ontario Iroquois Tradition*

reconstruction presented in this report. A schematic presentation of the Ontario Iroquois Tradition is given in Figure 2, and the chronological ordering of pertinent sites and their approximate ages are presented in Figure 3.

Within the total picture of Iroquois archaeology it appears that the concept of the area co-tradition is applicable. The stress, to date, in Iroquois studies has been on the chronological development of the various traditions. With the further consolidation of the traditions and an increased overall knowledge of the area, it should be possible to place a greater emphasis on the horizontal, contemporaneous relationships of the various traditions to one another. It is fully realized that the present report on one of these traditions is simplistic and that many of the interpretations will be subject to marked alterations. The attempt has been made, however, to integrate our present knowledge of Ontario Iroquois archaeology into a system based upon cultural development and process.

Stage	Components				A.D.
	Erie	*Neutral*	*Huron*	*Petun*	
Late Ontario Iroquois	Silverheels	Walker	Warminster	MacMurchy	1650
		Sealey	Orr Lake		
			Shebishikong		
	Ripley		Frank Bay (I)		
	Green Lake	Donovan		Graham-Rogers	1600
	Goodyear		Benson	Sidey-Mackay	
			Seed	Aurora	
			Hardrock	Woodbridge	
	Eaton Buffam	Lawson	Parsons	Bosomworth	1550
			McDonald	Frank Bay (II)	
	Shelby	Southwold	Black Creek	Copeland	1500
			Draper		
			Downsview		
			Doncaster	Lalonde	1450
Middle Ontario Iroquois		Pound	Millroy	Inverhuron	1400
	Kienuka		Frank Bay (III)	Webb	
		Middleport	Robb	Nodwell	1350
	Oakfield	Uren			
		Downpour	Elliott		1300
Early Ontario Iroquois			Bennett		
	Smale		Barrie	Frank Bay (IV)	1250
	Stafford		Boys	Frank Bay (V)	1200
	Goessens				
					1150
	Woodsmen		Miller		
					1100
				Frank Bay (VI)	1050
					1000
				Pic River	

FIGURE 3—*Chronological ordering of sites in the Ontario Iroquois Tradition*

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APPENDIX

Part I: *Glen Meyer Branch Pottery Types*

Part II: *Comparative Tables*

Part III: *Coefficient of Similarity Charts*

PART I

The Glen Meyer Branch Pottery Types

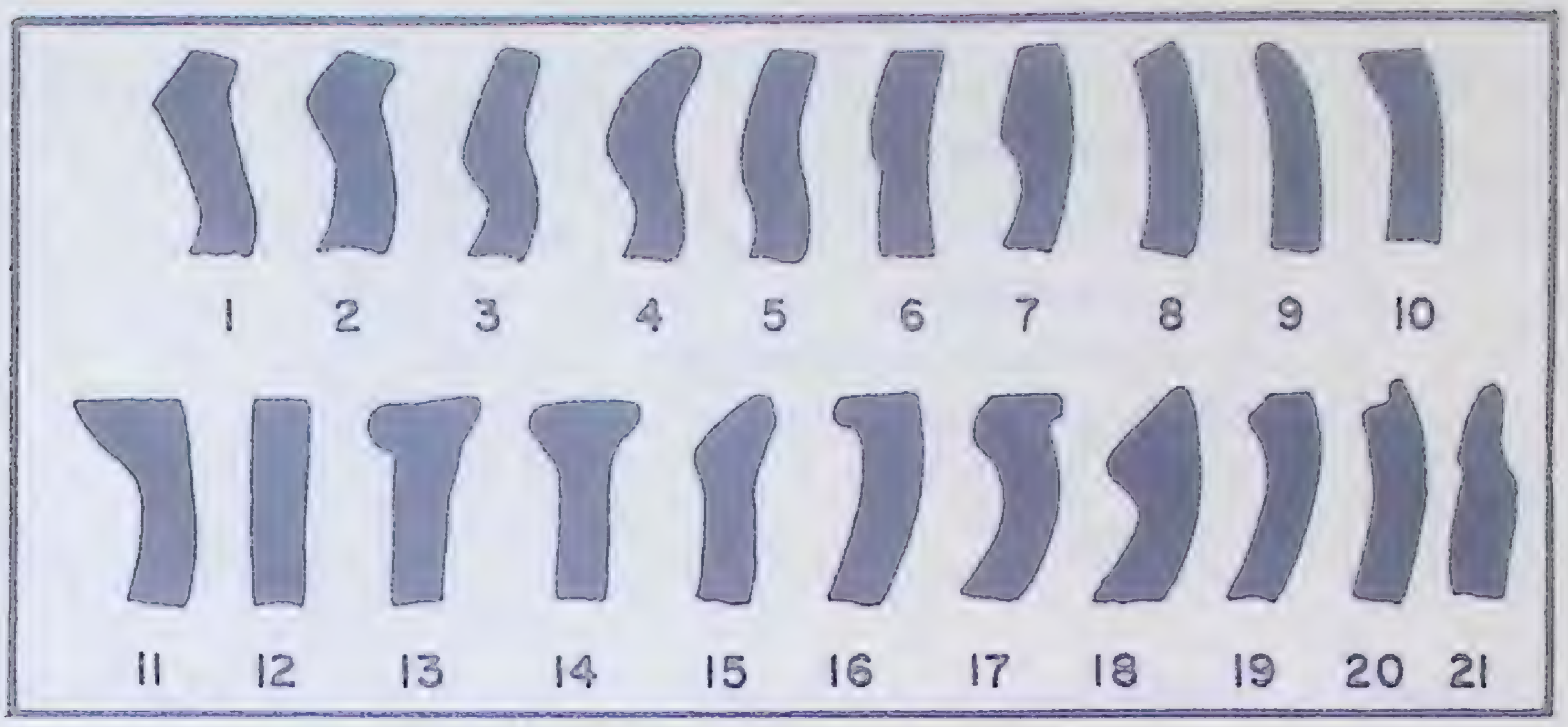


FIGURE 4—*Glen Meyer branch rim sherd cross-sections*

Ontario Oblique (Plate I, figs. 1–7)

MacNeish (1952:18) states that the diagnostic features of this pottery type, which is dominant in Uren and survives into Middleport, are "Bands of oblique lines either parallel or opposed on the neck and rim on globular-bodied vessels . . . ."

The following information was acquired from the 246 specimens of this type. Discrepancies in frequencies are due to the destruction of the feature under examination.

Motif		*f*	%
Exterior Rim:	Parallel oblique lines	161	65.0
	Opposed oblique lines	85	35.0
	Total	246	100.0
Interior Rim:	Obliques or verticals	124	52.0
	Plain	76	32.0
	Criss-cross	32	13.0
	Opposed obliques	7	3.0
	Total	239	100.0

Motif		*f*	%
Lip of Rim:	Plain	121	49.0
	Obliques or verticals	99	40.0
	Criss-cross	10	4.0
	Encircling incised	8	3.0
	Encircling incised over verticals	4	2.0
	Encircling punctate	4	2.0
	Total	246	100.0
Punctating:	Exterior boss	52	21.0
	Interior boss	3	1.0
	Exterior punctate (no boss)	4	2.0
	Interior punctate (no boss)	22	9.0
	Absent	165	67.0
	Total	246	100.0

Technique. Only the exterior rim motif and the boss and non-boss producing punctate are considered with reference to technique. Since the former largely reflects the techniques of decorating the interior rim and lip, no consideration is given to these attributes. It is also restated that the separation of the linear stamp technique from the incising technique is not accurate, and, as such, a range of error is anticipated. Turtle-shell Impressed refers to the technique of impressing the irregular suture-edge of a turtle shell fragment into the clay. Irregular Impressed simply refers to impressions made with some irregular-edged object whose exact nature could not be determined.

		f	%
Exterior Rim:	Linear stamp	119	48.0
	Turtle-shell impressed	55	22.0
	Irregular impressed	38	16.0
	Finger-nail impressed	21	9.0
	Incised	13	5.0
	Total	246	100.0

Motif		*f*	%
Punctating Tool:	Circular	30	43.0
	Irregular	9	13.0
	Rectanguloid	7	10.0
	Triangular	6	9.0
	Elliptical	6	9.0
	Ovate	4	6.0
	Rectangular	3	4.0
	Ovate-acuminate	2	3.0
	Kidney	2	3.0
	Semi-circular	1	1.0
	Total	70	101.0

Rim Shape (*See* Figure 4 for varieties of rim shape)

Rim cross-section varieties	*f*	%
1	14	7.0
2	16	8.0
3	45	21.0
4	8	4.0
5	33	15.0
6	5	2.0
7	17	8.0
8	35	16.0
9	11	5.0
10	8	4.0
11	6	3.0
12	6	3.0
13	3	1.0
14	2	1.0
15	1	.5
16	1	.5
17	1	.5
18	1	.5
Total	213	100.0

Thickness. This measurement is taken one inch below the lip and ranged from 4 mm to 13 mm with a mean of 7.8 mm.

Castellations—	Incipient pointed	5
	Incipient rounded	9

Glen Meyer Oblique (Plate I, figs. 8–14)

The diagnostic features of this pottery type are bands of parallel or opposed oblique lines of cord-wrapped stick impressed on the rim and neck of the vessel.

The following data were acquired from 172 specimens of the pottery type:

Motif		*f*	%
Exterior Rim:	Parallel oblique lines	140	81.0
	Opposed oblique lines	32	19.0
	Total	172	100.0
Interior Rim:	Oblique or vertical cord impressed	123	75.0
	Plain	27	17.0
	Criss-cross cord impressed	6	4.0
	Opposed obliques cord impressed	4	3.0
	Criss-cross linear stamp	2	1.0
	Crescent stamp	1	.5
	Total	163	100.5
Lip of Rim:	Oblique or vertical cord impressed	96	56.0
	Plain	55	32.0
	Encircling cord impressed	9	5.0
	Encircling punctate	6	4.0
	Encircling cord superimposed over cord impressed verticals	3	2.0
	Criss-cross linear stamp	2	1.0
	Total	171	100.0
Punctating:	Exterior boss	46	27.0
	Interior boss	2	1.0
	Exterior punctate (no boss)	3	2.0
	Interior punctate (no boss)	19	11.0
	Absent	102	59.0
	Total	172	100.0

Technique. Exterior Rim: As was stated earlier, the motifs are produced with a cord-wrapped stick. At the Goessens site these impressions ranged from 6 mm to 29 mm in length with a mean length of 13.5 mm.

		f	%
Punctating Tool:	Circular	21	30.0
	Irregular	10	14.0
	Rectanguloid	10	14.0
	Elliptical	8	11.0
	Ovate	7	10.0
	Ovate-acuminate	5	7.0
	Triangular	4	6.0
	Kidney	4	6.0
	Diamond	1	1.0
	Total	70	99.0

Rim Shape (*See* Figure 4 for varieties of rim shape).

Rim cross-section varieties	*f*	%
1	6	4.0
2	20	12.0
3	9	6.0
4	9	6.0
5	19	12.0
6	5	3.0
7	2	1.0
8	42	26.0
11	26	16.0
12	19	12.0
14	1	.5
15	1	.5
16	1	.5
19	1	.5
20	1	.5
Total	162	100.5

Thickness. Rim thicknesses range from 4 mm to 14 mm with a mean of 7.8 mm.

Castellations—	Incipient pointed	6
	Incipient rounded	8
	Punctated face	1

Middleport Criss-Cross (Plate II, figs. 1–5)

MacNeish (1952: 17), with reference to this pottery type, states that, "Particularly distinctive are the criss-cross incisions on the exterior rims."

The following data were obtained from 132 specimens of this pottery type:

Motif		*f*	%
Exterior Rim:	Criss-cross above oblique	42	32.0
	One row of criss-cross	33	25.0
	Two or more rows of criss-cross	24	18.0
	One or two rows of criss-cross above horizontals	9	7.0
	One row of criss-cross above opposed obliques	8	6.0
	Obliques above criss-cross	5	4.0
	Criss-cross above obliques above horizontals	5	4.0
	Criss-cross above opposed obliques above horizontals	3	2.0
	Criss-cross above punctates	2	2.0
	Punctates above criss-cross	1	1.0
	Total	132	101.0
Interior Rim:	Criss-cross	46	36.0
	Obliques or verticals	45	35.0
	Plain	32	25.0
	Oblique cord impressed	3	2.0
	Opposed obliques	2	2.0
	Total	128	100.0
Lip of Rim:	Plain	64	50.0
	Obliques or verticals	36	28.0
	Criss-cross	13	10.0
	Encircling punctate	7	5.0
	Encircling incised	3	2.0
	Oblique cord impressed	2	2.0
	Encircling incised superimposed on verticals	1	1.0
	Opposed obliques	1	1.0
	Encircling punctate superimposed over obliques	1	1.0
	Total	128	100.0
Punctating:	Exterior boss	23	17.0
	Interior boss	4	3.0
	Exterior punctate (no boss)	2	2.0
	Interior punctate (no boss)	11	8.0
	Absent	92	70.0
	Total	132	100.0

Technique. All horizontal lines are incised. Criss-cross formed by linear stamping could be differentiated from incised criss-cross since the latter technique is characterized by the first series of obliques being bent by the opposing, superimposed obliques.

		f	%
Exterior Rim:	Linear stamped	116	88.0
	Incised	9	7.0
	Irregular impressed	4	3.0
	Turtle-shell impressed	2	2.0
	Finger nail impressed	1	1.0
	Total	132	101.0
Punctating Tool:	Circular	19	50.0
	Kidney	4	11.0
	Irregular	4	11.0
	Elliptical	3	8.0
	Rectanguloid	3	8.0
	Rectangular	2	5.0
	Triangular	2	5.0
	Ovate	1	3.0
	Total	38	101.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
1	7	6.0
2	6	5.0
3	23	19.0
4	1	1.0
5	30	25.0
7	5	4.0
8	30	25.0
10	2	2.0
12	14	12.0
17	1	1.0
Total	119	100.0

Thickness. Rim sherd thickness has a range of 3 mm to 13 mm and a mean of 8.0 mm.

Castellations—	Incipient pointed	6
	Incipient rounded	1
	Punctated face	1

Stafford Stamped (Plate II, figs. 6–10)

The diagnostic feature of the pottery type is the presence of the crescent stamp impressions.

The following data were acquired from 75 specimens of this type.

Motif		*f*	%
Exterior Rim:	Bands of horizontal impressions	32	43.0
	Bands of oblique impressions	30	40.0
	Random impressions	10	13.0
	Bands of horizontal impressions over incised horizontals	3	4.0
	Total	75	100.0
Interior Rim:	Crescent stamp	52	76.0
	Plain	14	21.0
	Criss-cross cord impressed	2	3.0
	Total	68	100.0
Lip of Rim:	Crescent stamp	48	64.0
	Plain	26	35.0
	Encircling punctate	1	1.0
	Total	75	100.0
Punctating:	Exterior boss	24	32.0
	Interior punctate (no boss)	6	8.0
	Absent	45	60.0
	Total	75	100.0

Technique. Exterior Rim: The diagnostic feature of the Stafford Stamped pottery type is the presence of crescent shaped impressions. Such impressions may have been made with a handful of hollow reeds, the end of a reed mat, or a single hollow reed or bird bone. In all cases the impressions are made by applying the tool in an oblique fashion, the result of which is a crescent impression rather than a circle. This decorative technique is of such a nature that it is difficult to determine accurately the geometric pattern of the motif. As such, the quantification of motifs represents an impressionistic statement. The term 'random' in the motif category refers to a motif which was apparently produced by randomly dabbling the edges of a handful of reeds into the moist surface of the vessel.

Interior and Lip of Rim: Since the crescent stamp impressions on the interior and lip of the rims are too short to determine the geometric design, the presence of this decorative technique on the interior and lip of a rim is simply referred to as crescent stamped.

		f	%
Punctating Tool:	Circular	20	69.0
	Irregular	5	17.0
	Triangular	1	3.0
	Diamond	1	3.0
	Rectangular	1	3.0
	Semi-circular	1	3.0
	Total	29	98.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	3	4.0
3	14	21.0
4	2	3.0
5	10	15.0
6	3	4.0
7	5	7.0
8	21	31.0
12	7	10.0
18	2	3.0
20	1	1.0
Total	68	99.0

Thickness. Thickness ranges from 4 mm to 11 mm with a mean of 7.7 mm.

Castellations	Incipient pointed	2
	Incipient rounded	2

Ripley Plain (Plate III, figs. 1–3)

In the section treating Erie pottery types, MacNeish (1952: 25–26) describes the most distinctive feature of the Ripley Plain pottery type as its lack of decoration. When decoration does occur it is represented by incising on the lip.

The following data are derived from 57 specimens of this type:

Motif		*f*	%
Exterior Rim:	Plain	57	100.0
Interior Rim:	Plain	53	93.0
	Linear stamped obliques or verticals	2	4.0
	Crescent stamp	2	4.0
	Total	57	101.0
Lip of Rim:	Plain	44	77.0
	Linear stamped obliques or verticals	4	7.0
	Cord malleated	4	7.0
	Crescent stamp	4	7.0
	Encircling incised	1	2.0
	Total	57	100.0
Punctating:	Exterior boss	11	19.0
	Interior punctate (no boss)	1	2.0
	Absent	45	79.0
	Total	57	100.0

Technique. Exterior Rim: As a rule, the exterior surface of the rim has been carefully smoothed. Occasionally horizontal striae occur which may be the result of a final wiping with grass. In a few instances, very minute sections of cord malleation may appear on the surface, although most of the surface is smooth and the cording is difficult to distinguish because of obliteration during the final smoothing.

Lip and Interior Rim: Treatment of these areas of the rim has already been discussed under *Motif*. In MacNeish's description of the Ripley Plain pottery type, interior decoration is absent, and while 8 per cent of the rims in this sample possessed interior decoration, the low occurrence was not regarded as sufficient reason for their exclusion from the type.

		f	%
Punctating Tool:	Circular	6	50.0
	Irregular	1	8.0
	Triangular	1	8.0
	Elliptical	1	8.0
	Rectangular	1	8.0
	Semi-circular	1	8.0
	Rectanguloid	1	8.0
	Total	12	98.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	f	%
2	1	2.0
5	16	31.0
8	25	49.0
10	4	8.0
12	2	4.0
15	1	2.0
16	1	2.0
19	1	2.0
Total	51	100.0

Thickness. This measurement ranges from 3 mm to 13 mm with a mean of 8.2 mm.

Castellations—Incipient pointed.. 5

Woodsmen Corded (Plate III, figs. 4–6)

The diagnostic feature of the pottery type is the exterior treatment of the rim which consists of cord malleation.

The following data were acquired from 31 specimens:

Motif		f	%
Exterior Rim:	Cord malleation	31	100.0
Interior Rim:	Plain	28	90.0
	Crescent stamp	2	6.0
	Oblique cord impressed	1	3.0
	Total	31	99.0

Motif		*f*	%
Lip of Rim:	Plain	21	68.0
	Cord malleation	6	19.0
	Crescent stamp	2	6.0
	Vertical linear stamp	1	3.0
	Encircling cord	1	3.0
	Total	31	99.0

		f	%
Punctating:	Exterior boss	6	19.0
	Interior punctate (no boss)	1	3.0
	Absent	24	77.0
	Total	31	99.0

Technique. Exterior Rim: In all cases the cord malleation appears to have been done with a loosely cord-wrapped paddle. Usually the corded surface has been partially smoothed over.

		f	%
Punctating Tool:	Circular	11	69.0
	Rectanguloid	2	13.0
	Elliptical	1	6.0
	Irregular	1	6.0
	Diamond	1	6.0
	Total	16	100.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	2	7.0
5	7	26.0
6	1	4.0
7	2	7.0
8	10	37.0
12	3	11.0
14	1	4.0
21	1	4.0
Total	27	100.0

Thickness. Rim thickness ranges from 4 mm to 10 mm with a mean of 7.5 mm.

Castellations—Incipient rounded........ 1

Glen Meyer Linear Stamped (Plate III, figs. 7–9)

The diagnostic feature of the pottery type is a single row of oblique or, rarely, vertical linear stamped impressions directly below the lip.

The following data were acquired from 23 specimens of this pottery type:

Motif		*f*	%
Exterior Rim:	Linear stamped obliques or verticals	23	100.0
Interior Rim:	Plain	13	59.0
	Oblique or vertical linear stamp	7	32.0
	Criss-cross linear stamp	2	9.0
	Total	22	100.0
Lip of Rim:	Plain	9	41.0
	Oblique or vertical linear stamp	7	32.0
	Encircling incised	2	9.0
	Criss-cross linear stamp	2	9.0
	Encircling punctate	2	9.0
	Total	22	100.0
Punctating:	Exterior boss	4	17.0
	Interior punctate (no boss)	4	17.0
	Absent	15	65.0
	Total	23	99.0

Technique. Exterior Rim: While the majority of the motifs appear to have been produced by linear stamping, a few cases of incising may be present.

Punctating Tool:	Circular	6	75.0
	Rectangular	1	13.0
	Irregular	1	13.0
	Total	8	101.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	3	14.0
5	1	5.0
6	2	9.0
7	5	23.0
8	6	27.0
12	3	14.0
14	1	5.0
19	1	5.0
Total	22	102.0

Thickness. Rim thickness ranges from 3 mm to 10 mm with a mean of 6.3 mm.

Castellations	Incipient rounded	1
	Incipient pointed	1

Goessens Punctate (Plate III, figs. 10–12)

The diagnostic feature of this pottery type is the presence of one or more horizontal rows of circular, triangular, ovate, or rectangular punctates. Usually two or more rows of punctate are present, and in one instance horizontal incised lines were present below the punctates.

Twenty-two examples of this pottery type came from the Goessens and Stafford sites.

Motif

Exterior Rim: The variation within this type is so great with reference to the type of punctating tool and the number of horizontal rows of punctate that no attempt was made to quantify the attributes. In one sense this type represents a catch-all category which is unified by the presence of horizontal rows of punctates produced by a variety of tools.

		f	%
Interior Rim:	Plain	17	77.0
	Punctates	3	14.0
	Crescent stamp	1	5.0
	Criss-cross linear stamp	1	5.0
	Total	22	101.0

		f	%
Lip of Rim:	Plain	10	46.0
	Encircling punctate	7	32.0
	Oblique or vertical linear stamp	5	23.0
	Total	22	101.0
Punctating:	Exterior boss	6	27.0
	Absent	16	73.0
	Total	22	100.0

Technique. Exterior Rim: The technique consists of individual punctates done with a variety of tools and arranged in horizontal lines. Occasionally there is a slight dragging motion between punctates which vaguely approaches the linear punctate technique.

		f	%
Punctating Tool:	Circular	2	33.0
	Irregular	2	33.0
	Semi-circular	1	17.0
	Rectangular	1	17.0
	Total	6	100.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	f	%
1	2	9.0
2	5	23.0
3	8	36.0
5	2	9.0
8	3	14.0
12	2	9.0
Total	22	100.0

Thickness. Rim thickness ranges from 4 mm to 12 mm with a mean of 6.8 mm.

Castellations	Incipient rounded	2
	Incipient pointed	1

Glen Meyer Necked (Plate IV, figs. 1–3)

The diagnostic attributes of this pottery type are parallel or opposed, single or double, rows of oblique linear stamp over incised horizontals which occur around the neck. Occasionally obliques occur below the horizontals. Eighteen examples of this pottery type are considered.

Motif		*f*	%
Exterior Rim:	One or more rows of opposed linear stamped obliques over incised horizontals	12	67.0
	Two rows of linear stamped obliques over incised horizontals	4	22.0
	One row of linear stamped obliques over incised horizontals	2	11.0
	Total	18	100.0
Interior Rim:	Oblique or vertical linear stamp	8	47.0
	Plain	6	35.0
	Criss-cross linear stamp	3	18.0
	Total	17	100.0
Lip of Rim:	Plain	9	53.0
	Oblique or vertical linear stamp	4	24.0
	Criss-cross linear stamp	3	18.0
	Encircling punctate	1	6.0
	Total	17	101.0
Punctating:	Exterior boss	5	28.0
	Interior boss	4	22.0
	Interior punctate (no boss)	1	6.0
	Absent	8	44.0
	Total	18	100.0

Technique. Exterior Rim: The oblique impressions below the lip are produced by linear stamping as are the occasional obliques which occur below the incised horizontals running around the neck.

		f	%
Punctating Tool:	Circular	4	36.0
	Rectangular	3	27.0
	Irregular	2	18.0
	Ovate-acuminate	2	18.0
	Total	11	99.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	6	35.0
3	1	6.0
5	1	6.0
8	5	29.0
12	4	24.0
Total	17	100.0

Thickness. Rim thicknesses range from 5 mm to 11 mm with a mean of 7.5 mm.

Castellations	Incipient rounded	1
	Incipient pointed	1
	Classic pointed	1

Goessens Necked (Plate IV, figs. 4, 5)

The diagnostic features of this pottery type are one or two rows of parallel oblique cord-wrapped stick impressions above incised horizontals which encircle the neck. One case of a row of opposed cord obliques above incised horizontals did occur.

The following data were acquired from 19 specimens:

Motif		*f*	%
Exterior Rim:	Two rows of parallel oblique cord impressions above incised horizontals	11	58.0
	One row of oblique cord impressions above incised horizontals	7	37.0
	One row of opposed oblique cord impressions above incised horizontals	1	5.0
	Total	19	100.0

Motif		*f*	%
Interior Rim:	Oblique cord impressions	15	79.0
	Plain	3	16.0
	Oblique linear stamp	1	5.0
	Total	19	100.0
Lip of Rim:	Oblique cord impressions	10	53.0
	Plain	4	21.0
	Oblique linear stamp	3	16.0
	Criss-cross linear stamp	1	5.0
	Encircling cord impressions	1	5.0
	Total	19	100.0
Punctating:	Exterior boss	3	16.0
	Interior punctate (no boss)	3	16.0
	Absent	13	68.0
	Total	19	100.0

Technique. Exterior Rim: The oblique impressions are produced with a cord-wrapped stick. The horizontal lines encircling the neck are always incised.

		f	%
Punctating Tool:	Circular	4	80.0
	Rectanguloid	1	20.0
	Total	5	100.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	12	63.0
5	2	11.0
8	5	26.0
Total	19	100.0

Thickness. Rim thickness ranges from 5 mm to 13 mm with a mean of 7.3 mm.

Castellations—Incipient pointed.. 1

Goessens Oblique (Plate IV, figs. 6–8)

The diagnostic feature of this pottery type is a single row of cord-wrapped stick impressions occurring directly below the lip.

The following data were obtained from 18 specimens:

Motif		*f*	%
Exterior Rim:	One row of oblique cord impression	18	100.0
Interior Rim:	Oblique cord impressions	13	76.0
	Plain	4	24.0
	Total	17	100.0
Lip of Rim:	Plain	7	39.0
	Oblique cord impressions	7	39.0
	Encircling cord	2	11.0
	Oblique linear stamp	2	11.0
	Total	18	100.0
Punctating:	Exterior boss	8	44.0
	Absent	10	56.0
	Total	18	100.0

Technique. Exterior Rim: Cord impressions are made with a cord-wrapped stick.

		f	%
Punctating Tool:	Circular	6	75.0
	Elliptical	1	13.0
	Irregular	1	13.0
	Total	8	101.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	5	31.0
3	2	13.0
6	1	6.0
7	2	13.0
8	6	38.0
Total	16	101.0

Thickness. Rim thickness ranges from 5 mm to 12 mm with a mean of 8.0 mm.

Castellations—Incipient pointed 1

Stafford Dentate (Plate V, figs. 1, 2)

The diagnostic features of this pottery type are horizontal rows of oblique dentate stamp. Fourteen specimens were recovered from the Stafford and Goessens sites.

Motif		*f*	%
Exterior Rim:	Rows of parallel obliques	14	100.0
Interior Rim:	Oblique dentate stamp	10	83.0
	Plain	2	17.0
	Total	12	100.0
Lip of Rim:	Oblique dentate stamp	10	71.0
	Encircling punctate	2	14.0
	Encircling incised	1	7.0
	Plain	1	7.0
	Total	14	99.0
Punctating:	Interior boss	1	7.0
	Interior punctate (no boss)	4	29.0
	Absent	9	64.0
	Total	14	100.0

Technique. Exterior Rim: The dentate impressions are generally quite crude. The impressions are rectangular or square, and both forms may appear on the same implement. Impressions are usually 2 mm to 3 mm in length and are separated by 1 mm or less.

		f	%
Punctating Tool:	Kidney	3	60.0
	Circular	1	20.0
	Rectanguloid	1	20.0
	Total	5	100.0

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	9	64.0
3	3	21.0
7	1	7.0
8	1	7.0
Total	14	99.0

Thickness. Rim thickness ranges from 7 mm to 11 mm with a mean of 9.1 mm.

Castellations—Present but indeterminable.

Ontario Horizontal (Plate V, figs. 3–5)

MacNeish (1952: 16) states that the diagnostic attributes of this pottery type are "Horizontal lines on short channelled collars."

The following information was acquired from 16 specimens which were recovered from the Downpour site. It should be restated that this site is regarded as an early component of the Middle Ontario Iroquois stage.

Motif		*f*	%
Exterior Rim:	Horizontal incised lines	10	63.0
	Vertically notched lip edge over horizontal incised lines	4	25.0
	Linear stamped oblique over incised horizontals	1	6.0
	Vertically notched lip edge over linear stamped obliques over horizontal incised lines	1	6.0
	Total	16	100.0

Motif		*f*	%
Interior Rim:	Vertically notched lip edge	6	40.0
	Plain	5	33.0
	Oblique or vertical linear stamp	2	13.0
	Incised horizontals	1	7.0
	Incised chevron	1	7.0
	Total	15	100.0
Lip of Rim:	Plain	6	40.0
	Encircling incised	4	27.0
	Encircling punctate	3	20.0
	Oblique incised	2	13.0
	Total	15	100.0
Punctating:	Interior punctate (no boss)	3	19.0
	Absent	13	81.0
	Total	16	100.0

Technique. Exterior Rim: The incising on these rims tends to be broader and deeper than the incising encountered in the neck decoration of the Glen Meyer Necked and Goessens Necked pottery types, although a wide range of execution is present. A new decorative technique not encountered on the Glen Meyer ceramics is the short vertical notching of the exterior and/or interior lip edge.

Punctating Tool: Circular 3

Rim Shape (*See* Figure 4).

Rim cross-section varieties	*f*	%
2	3	33.0
3	1	11.0
5	4	44.0
12	1	11.0
Total	9	99.0

Thickness. Rim thicknesses range from 6 mm to 14 mm with a mean of 9.3 mm.

Castellations—Incipient rounded 1

Miscellaneous Rim Sherds (Plate VI)

Of the 929 rim sherds from the nine sites involved in this analysis, 44 were placed into a miscellaneous category. If comparable rim sherds had a frequency of ten or less, they were placed in this category. A brief description of the exterior design of the miscellaneous rim sherds is presented for each site.

Goessens Site

The following miscellaneous rim sherds were represented: cord impressed opposed obliques above horizontal cord impressions above oblique plats of short horizontal cord impressions and exterior bossing (fig. 1); oblique plats of short oblique cord impressions and exterior bossing; linear stamped opposed obliques above oblique plats of short horizontal cord impressions; two horizontal rows of punctations above oblique plats formed with the same tool; cord impressed obliques above opposed linear stamped obliques above zoned areas on the throat which are filled with incised obliques, and exterior bossing (fig. 6); incised opposed obliques above incised horizontals; three rows of triangular punctations above widely spaced incised obliques; two examples of fine rectangular dentate stamp forming opposed obliques on the collar only (fig. 7); two examples of linear stamped obliques above vertical complex stamp; vertical dentate stamp above horizontal punctates; and cord impressed criss-cross.

Stafford Site

The following miscellaneous rims were found: two examples of vertical cord impressions above oblique plats composed of short oblique cord[1] impressions and exterior bossing; oblique linear stamp above oblique plats of short oblique linear stamp (fig. 2); oblique striations on both the exterior and the interior; cord impressed criss-cross with interior bossing (fig. 4); oblique linear stamp above horizontal crescent stamp; and a repeating series of oblique linear stamp above incised horizontals.

Smale Site

The following miscellaneous rim sherds were present: two examples of cord impressed criss-cross; oblique punctates; and incised opposed obliques separated by three lines of incised horizontals.

Woodsmen Site

The following miscellaneous rims were present: two rows of oblique linear stamp above oblique plats of short oblique linear stamp (fig. 3); two rows of oblique cord impressions above oblique plats composed of short oblique cord impressions; and oblique linear stamp above vertical crescent stamp.

Reid Site

The following rims occurred: cord impressed opposed obliques above cord impressed horizontals (fig. 5); widely-spaced incised horizontals superimposed over a vertically cord malleated surface; and oblique punctates produced with the end of a cord-wrapped stick.

Too Site

The following rims occurred: incised zones filled with incised horizontals or obliques (fig. 8); zones of oblique cord impressions superimposed on a vertical cord malleated surface; and cord impressed opposed obliques above horizontal cord impressions, and exterior bossing.

Faulds Site

The following rims occurred: three examples of two rows of parallel oblique cord impressions on an everted rim with a flat, splayed-out lip and interior bossing; two examples possessed a row of oblique cord impressions on the neck with the area above being left plain, and interior bossing.

PART II

Comparative Tables

TABLE 1—*Glen Meyer branch rim sherd seriation*

SITE	Woodsmen		Goessens		Stafford		Smale		Too		Mi^{v}18		Reid		Faulds		Downpour	
POTTERY TYPE	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Ontario Oblique	2	3.4	166	31.1	62	30.0	16	28.6	1	7.7	3	37.5	2	15.1	1	11.1	1	3.1
Glen Meyer Oblique	20	34.5	101	18.9	45	21.7	6	10.7	5	38.5	4	50.0	3	23.1	—		—	
Middleport Criss-Cross	13	22.4	78	14.6	25	12.1	16	28.6	3	23.1	1	12.5	—		—		—	
Stafford Stamped	3	5.2	31	5.8	34	16.4	7	12.5	—		—		3	23.1	1	11.1	2	6.3
Ripley Plain	4	6.9	43	8.1	9	4.3	1	1.8	—		—		—		—		6	18.1
Woodsmen Corded	6	10.3	20	3.8	5	2.4	—		—		—		—		—		—	
Glen Meyer Linear Stamped	1	1.7	16	3.0	2	1.0	4	7.1	—		—		1	7.7	—		1	3.1
Goessens Punctate	—	—	19	3.6	3	1.4	—		—		—		—		—		—	
Glen Meyer Necked	2	3.4	14	2.6	1	.5	1	1.8	—		—		—		1	11.1	—	
Goessens Necked	3	5.2	16	3.0	—		—		1	7.7	—		1	7.7	1	11.1	—	
Goessens Oblique	1	1.7	13	2.4	3	1.4	1	1.8	—		—		—		—		—	
Stafford Dentate	—	—	3	.6	11	5.3	—		—		—		—		—		—	
Ontario Horizontal	—	—	—		—		—		—		—		—		—		16	50.0
Iroquois Linear	—	—	—		—		—		—		—		—		—		4	12.5
Miscellaneous	3	5.2	13	2.4	7	3.4	4	7.1	3	23.1	—		3	23.1	5	55.5	2	6.3
TOTALS	58	99.9	533	99.9	207	99.9	56	100.0	13	100.1	8	100.0	13	99.8	9	99.9	32	99.4

TABLE 2—*Inter-type seriation of the Ontario Oblique pottery type*

POTTERY TYPE	Occur- rence	Exterior Motif		Exterior Technique					Lip Motif and Technique					
ONTARIO OBLIQUE SITE		Horizontal bands of parallel obliques	Horizontal opposed bands of parallel obliques	Linear stamped	Turtle-shell impressed	Irregular impressed	Incised	Fingernail impressed	Plain	Oblique or vertical linear stamp	Criss-cross linear stamp	Encircling incised	Vertical linear stamp with superimposed encircling incised	Encircling punctate
Smale	16 28.6	15 94.0	1 6.0	11 69.0	—		2 13.0	3 18.0	5 31.0	8 50.0	2 13.0	1 6.0	—	—
Stafford	62 30.0	53 85.0	9 15.0	33 53.0	18 29.0	10 16.0	—	1 2.0	31 50.0	24 39.0	4 6.0	1 2.0	—	2 3.0
Goessens	166 31.1	91 55.0	75 45.0	74 45.0	37 22.0	27 16.0	11 7.0	17 10.0	85 51.0	65 39.0	4 2.0	6 4.0	4 2.0	2 1.0
Woodsmen	2 3.4	2 100.0	—	1 50.0	—	1 50.0	—	—	—	2 100.0	—	—	—	—

TABLE 3—*Inter-type seriation of the Glen Meyer Oblique pottery type*

POTTERY TYPE	Occur- rence	Exterior Motif		Lip Motif and Technique						Interior Motif and Technique					
GLEN MEYER OBLIQUE SITE		Horizontal bands of parallel obliques	Horizontal opposed bands of parallel obliques	Plain	Oblique or vertical cord impressed	Encircling cord	Encircling punctate	Encircling cord with superimposed vertical cord	Criss-cross linear stamp	Plain	Oblique or vertical cord impressed	Opposed obliques cord impressed	Criss-cross linear stamp	Criss-cross cord impressed	Crescent stamped
Smale	6 10.7	5 83.0	1 17.0	1 17.0	5 83.0	—	—	—	—	1 17.0	4 66.0	1 17.0	—	—	—
Stafford	45 21.7	43 96.0	2 4.0	16 36.0	29 64.0	—	—	—	—	6 13.0	28 62.0	1 2.0	—	5 11.0	1 2.0
Goessens	101 18.9	77 76.0	24 24.0	33 33.0	51 50.0	7 7.0	6 6.0	3 3.0	1 1.0	20 18.0	76 75.0	—	1 1.0	1 1.0	—
Woodsmen	20 34.5	15 75.0	5 25.0	5 25.0	11 55.0	2 10.0	—	—	1 5.0	—	15 75.0	2 10.0	1 5.0	—	—

Interior Motif and Technique				Boss and Non-Boss Producing Punctates					Major Rim Cross-Section Varieties					Castellations		Thickness (mm)	
Oblique or vertical linear stamp	Plain	Criss-cross linear stamp	Opposed obliques linear stamp	Exterior boss	Interior boss	Exterior punctate (no boss)	Interior punctate (no boss)	Absent	2	3	5	8	12	Incipient pointed	Incipient rounded	Range	Mean
12 88.0	2 6.0	2 6.0	—	1 6.0	—	—	—	15 94.0	2 13.0	—	8 50.0	3 18.0	1 6.0	—	—	7–13	9.4
28 45.0	11 18.0	118 29.0	2.0	17 27.0	—	—	3 5.0	42 68.0	—	14 23.0	5 8.0	7 11.0	4 6.0	1 2.0	6 10.0	4–9	7.0
85 51.0	63 38.0	12 7.0	6 4.0	34 20.0	3 2.0	4 2.0	19 11.0	106 65.0	14 9.0	31 19.0	20 12.0	25 15.0	1 1.0	4 2.0	3 2.0	4–10	7.0
1 50.0	—	—	—	—	—	—	—	2 100.0	—	—		—	—	—		—	—

Boss and Non-Boss Producing Punctates					Major Rim Cross-Section Varieties					Castellations			Thickness (mm)	
Exterior boss	Interior boss	Exterior punctate (no boss)	Interior punctate (no boss)	Absent	2	3	5	8	12	Incipient pointed	Incipient rounded	Incipient pointed with punctate face	Range	Mean
2 33.0	—	1 17.0	—	3 50.0	—	—	—	2 33.0	2 33.0	—	1 17.0	—	7–9	8.0
10 22.0	—	—	6 13.0	29 64.0	3 7.0	—	—	5 11.0	10 22.0	4 9.0	4 9.0	—	4–10	7.3
31 31.0	2 2.0	1 1.0	13 13.0	54 53.0	17 17.0	8 8.0	18 18.0	26 26.0	3 3.0	4 4.0	—	1 1.0	4–11	7.7
3 15.0	—	1 5.0	—	16 80.0	—	1 5.0	1 5.0	9 45.0	4 20.0	1 5.0	—	—	5–14	8.1

TABLE 4—*Inter-type seriation of the Middleport Criss-cross pottery type*

POTTERY TYPE	Occurrence	Exterior Motif										Exterior Criss-Cross Technique					Lip Motif and Technique			
MIDDLEPORT CRISS-CROSS SITE		One row of criss-cross	Two or more rows of criss-cross	Criss-cross above obliques	One or more rows of criss-cross above horizontals	Criss-cross above opposed obliques	Obliques above criss-cross	Punctates above criss-cross	Criss-cross above punctates	Criss-cross above obliques above horizontals	Criss-cross above opposed obliques above horizontals	Linear stamp	Turtle-shell impressed	Irregular impressed	Incised	Fingernail impressed	Plain	Oblique or vertical linear stamp	Criss-cross linear stamp	Vertical linear stamp superimposed on encircling incised
Smale	16 28.6	7 44.0	6 39.0	3 19.0	—	—	—	—	—	—	—	14 88.0	—	—	2 12.0	—	2 12.0	6 39.0	6 39.0	1 6.
Stafford	25 12.1	5 20.0	8 32.0	7 28.0	2 8.0	2 8.0	—	—	—	—	1 4.0	25 100.0	—	—	—	—	14 56.0	7 28.0	2 8.0	—
Goessens	78 14.6	16 21.0	9 12.0	27 35.0	7 9.0	6 8.0	5 6.0	1 1.0	2 3.0	5 6.0	—	65 83.0	2 3.0	3 4.0	7 9.0	1 1.0	44 56.0	21 27.0	4 5.0	—
Woodsmen	13 22.4	5 38.0	1 8.0	5 38.0	—	—	—	—	—	—	2 15.0	12 92.0	—	1 8.0	—	—	4 31.0	2 15.0	1 8.0	—

TABLE 5—*Inter-type seriation of the Stafford Stamped pottery type*

POTTERY TYPE	Occurrence	Exterior Motif					Lip Motif and Technique			Interior Motif and Technique		
STAFFORD STAMPED SITE		Oblique crescent stamp	Horizontal crescent stamp	Random crescent stamp	Horizontal crescent stamp over incised horizontals	Oblique crescent stamp over incised horizontals	Crescent stamp	Plain	Encircling punctate	Crescent stamp	Plain	Criss-cross cord impressed
Smale	7 12.5	6 86.0	1 14.0	—	—	—	6 86.0	1 14.0	—	5 71.0	2 29.0	—
Stafford	34 16.4	16 47.0	13 38.0	4 12.0	—	1 3.0	16 47.0	17 50.0	1 3.0	21 62.0	4 12.0	2 6.0
Goessens	31 5.8	7 23.0	16 52.0	6 19.0	2 6.0	—	24 77.0	7 23.0	—	23 74.0	8 26.0	—
Woodsmen	3 5.2	1 33.0	2 66.0	—	—	—	2 66.0	1 33.0	—	3 100.0	—	—

				Interior Motif and Technique					Boss and Non-Boss Producing Punctates					Major Rim Cross-Section Varieties					Castellations			Thickness (mm)	
Encircling punctates	Encircling incised	Opposed obliques linear stamp	Oblique cord impressed	Oblique or vertical linear stamp	Criss-cross linear stamp	Plain	Oblique cord impressed	Opposed oblique linear stamp	Exterior boss	Interior boss	Exterior punctate (no boss)	Interior punctate (no boss)	Absent	2	3	5	8	12	Incipient pointed	Incipient rounded	Incipient rounded with punctate face	Range	Mean
1 6.0	—	—	—	8 50.0	6 39.0	1 6.0	—	—	1 6.0	2 12.0	1 6.0	—	12 75.0	—	2 12.0	4 25.0	1 6.0	5 31.0	—	—	—	6–13	9.9
1 4.0	1 4.0	—	—	7 28.0	12 48.0	5 20.0	—	—	2 8.0	—	1 4.0	1 4.0	21 84.0	1 4.0	—	7 28.0	5 20.0	1 4.0	—	—	—	3–13	7.8
4 5.0	1 1.0	1 1.0	2 3.0	28 36.0	25 32.0	19 24.0	3 4.0	1 1.0	15 19.0	2 3.0	—	8 10.0	53 68.0	3 4.0	21 27.0	18 23.0	18 23.0	5 6.0	4 5.0	1 1.0	1 1.0	4–12	7.4
2 15.0	4 31.0	—	—	2 15.0	3 23.0	57 54.0	—	1 8.0	5 38.0	—	—	2 15.0	6 46.0	2 15.0	—	1 8.0	6 46.0	3 23.0	2 15.0	—	—	4–10	7.0

Boss and Non-Boss Producing Punctates					Major Rim Cross-Section Varieties					Castellations		Thickness (mm)	
Exterior boss	Interior boss	Exterior punctate (no boss)	Interior punctate (no boss)	Absent	2	3	5	8	12	Incipient pointed	Incipient rounded	Range	Mean
1 14.0	—	—	—	6 86.0	—	2 29.0	2 29.0	1 14.0	—	—	—	7–11	8.6
12 35.0	—	—	5 15.0	17 50.0	—	4 12.0	8 24.0	7 21.0	2 6.0	—	2 6.0	6–11	8.8
9 29.0	—	—	1 3.0	21 68.0	—	8 26.0	—	13 42.0	5 16.0	2 6.0	—	4–10	7.3
2 66.0	—	—	—	1 33.0	3 100.0	—	—	—	—	—	—	5–6	5.5

TABLE 6—*Inter-type seriation of the Ripley Plain pottery type*

POTTERY TYPE	Occurrence	Lip Motif and Technique					Interior Motif and Technique			Boss and Non-Boss Producing Punctates					Major Rim Cross-Section Varieties					Castellations	Thickness (mm)	
RIPLEY PLAIN SITE		Oblique linear stamp	Plain	Irregular cord impression	Crescent stamp	Encircling incised	Oblique or vertical linear stamp	Plain	Crescent stamp	Exterior boss	Interior boss	Exterior punctate (no boss)	Interior punctate (no boss)	Absent	2	3	5	8	12	Incipient pointed	Range	Mean
Smale	1 1.8	1 100.0	—	—	—	—	1 100.0	—	—	—	—	—	—	1 100.0	—	—	—	1 100.0	—	—	—	10.0
Stafford	9 4.3	2 22.0	6 67.0	—	1 11.0	—	1 11.0	5 56.0	2 22.0	1 11.0	—	—	—	8 89.0	1 11.0	—	—	4 44.0	1 11.0	—	4–9	7.4
Goessens	43 8.1	—	35 81.0	4 9.0	3 7.0	1 2.0	—	43 100.0	—	10 23.0	—	—	1 2.0	32 74.0	—	—	16 37.0	18 42.0	1 2.0	4 9.0	3–13	7.2
Woodsmen	4 6.9	1 25.0	3 75.0	—	—	—	—	4 100.0	—	—	—	—	—	4 100.0	—	—	—	2 50.0	—	1 25.0	7–9	8.3

TABLE 7—*The body sherd seriation of four Glen Meyer branch sites and one comparative Middle Ontario Iroquois stage site*

TREATMENT SITE	Plain	Scarified	Fabric impressed	Cord malleated	Smoothed-over cord	Scarified-over cord	Ribbed paddle	Incised	Thickness (mm)	
									Range	Mean
Downpour	33 35.0	2 2.0	—	—	3 3.0	—	56 60.0	—	5–16	8.0
Smale	32 11.0	32 11.0	48 16.0	15 5.0	163 56.0	—	—	3 1.0	4–16	8.0
Stafford	113 16.0	191 27.0	22 3.0	38 5.0	237 34.0	35 5.0	64 9.0	—	4–14	8.0
Goessens	189 10.0	518 29.0	244 14.0	129 7.0	681 38.0	41 2.0	5 0.3	—	3–16	7.1
Woodsmen	35 8.0	51 11.0	131 29.0	14 3.0	206 46.0	9 2.0	—	—	3–15	6.1

TABLE 8—*The neck sherd seriation from four Glen Meyer branch sites and one comparative Middle Ontario Iroquois stage site*

TREATMENT SITE	Decorated	Plain	Smoothed-over cord	Scarified	Cord malleated	Fabric impressed	Painted	Ribbed paddle
Downpour	2 6.0	12 33.0	—	11 31.0	—	—	1 3.0	10 28.0
Smale	76 46.0	69 42.0	16 10.0	4 2.0	—	—	—	—
Stafford	85 29.0	156 53.0	24 8.0	28 9.0	—	—	1 0.4	1 0.4
Goessens	335 36.0	393 42.0	130 14.0	75 8.0	4 0.4	3 0.3	1 0.1	—
Woodsmen	88 50.0	66 37.0	14 8.0	8 5.0	—	1 1.0	—	—

TABLE 9—*Reconstructed Glen Meyer branch vessels*

VESSEL	TYPE	Surface treatment of body	Castellations	Mouth diameter mm	Neck diameter mm	Shoulder or max. diameter mm	Maximum height mm
VIII-F-29977	Goessens Necked	Smoothed-over Cord	Incipient Pointed (6)	364	308	380	460
VIII-F-30837	Stafford Stamped	Smoothed-over Cord	Incipient Rounded (4)	225	189	264	333
VIII-F-29221	Glen Meyer Necked	Smoothed-over Cord	Absent	169	147	202	233

TABLE 10—*Form and metrical attributes of the triangular projectile points from four Glen Meyer branch*

Triangular Projectile Points	Frequency	Base Configuration			Blade Edge Configuration					Length (mm)			Base Width (mm)			Thickness (		
		Straight	Concave	Convex	Straight	Concave	Convex	Concave / Convex	Straight / Convex	Frequency	Range	Mean	Frequency	Range	Mean	Frequency	Range	Mean
Smale	7 78.0	3 43.0	4 57.0	—	3 43.0	—	3 43.0	1 14.0	—	3	25–44	33.3	6	17–30	21.7	7	4-6	5.
Stafford	11 69.0	5 45.0	5 45.0	1 9.0	2 18.0	1 9.0	6 55.0	—	2 18.0	5	27–45	39.4	11	14–32	23.6	11	4-10	7.
Goessens	40 83.0	16 40.0	19 48.0	5 13.0	20 50.0	2 5.0	12 30.0	2 5.0	4 10.0	17	21–59	38.0	37	14–36	22.5	40	3-11	5.
Woodsmen	9 100.0	3 33.0	4 44.0	2 22.0	2 22.0	1 11.0	5 56.0	1 11.0	—	7	27–37	31.3	9	14–28	19.1	9	4-8	5.

TABLE 11—*The scraper seriation for four Glen Meyer branch sites*

SITE SCRAPER VARIETY	Glen Meyer End Scraper	Random Flake Scraper	Spokeshave Scraper	Thumbnail Scraper	Blade End Scraper	Side-Notched End Scraper
Smale	2 18.0	6 55.0	1 9.0	1 9.0	1 9.0	—
Stafford	5 14.0	22 59.0	6 16.0	4 11.0	—	—
Goessens	15 25.0	29 49.0	10 17.0	1 2.0	3 5.0	1 2.0
Woodsmen	—	3 50.0	3 50.0	—	—	—

TABLE 12—*Rim sherd seriation for three Pickering branch sites*

POTTERY TYPE SITES	Bennett (543)	Barrie (69)	Boys (257)
Iroquois Linear	47.0	49.0	4.0
Ontario Horizontal	12.0	7.0	2.0
Ontario Oblique	11.0	19.0	21.0
Bossed Scugog Punctate Collar	3.0	19.0	12.0
Middleport Criss-cross	2.0	—	—
Glen Meyer Linear Stamped	1.0	—	—
Ripley Plain	1.0	2.0	2.0
Scugog Classic Bossed	1.0	—	18.0
Boys Oblique Dentate	—	2.0	8.0
Glen Meyer Oblique	—	—	4.0
Miscellaneous	21.0	3.0	28.0
Totals	99.0	101.0	99.0

TABLE 13—*Body sherd seriation for three Pickering branch sites*

SITE / TREATMENT	Plain	Ribbed Paddle	Cord	Check Stamp	Scarified
Bennett	44.0	30.0	12.0	8.0	6.0
Boys	40.0	38.0	6.0	16.0	—
Miller	44.0	—	37.0	19.0	—

TABLE 14—*Rim sherd seriations for four Uren substage sites and two late Pickering branch sites*

POTTERY TYPES IN PERCENTAGE / SITE	Downpour (32)	Oakfield (129)	Uren (1087)	Elliott (67)	Bennett (543)	Barrie (69)
Iroquois Linear	13.0	14.0	15.0	43.0	47.0	49.0
Ontario Horizontal	50.0	30.0	48.0	13.0	12.0	7.0
Ontario Oblique	3.0	1.0	21.0	19.0	11.0	19.0
Ripley Plain	18.0	2.0	P	1.0	1.0	2.0
Glen Meyer Linear Stamped	3.0	—	—	—	1.0	—
Stafford Stamped	6.0	—	P	—	—	—
Niagara Collared	—	3.0	1.0	—	—	—
Middleport Oblique	—	3.0	—	6.0	—	—
Huron Incised	—	1.0	—	—	—	—
Lawson Incised	—	—	1.0	—	—	—
Middleport Criss-cross	—	—	P	—	2.0	—
Bossed Scugog Punctate Collar	—	—	P	—	3.0	19.0
Scugog Classic Bossed	—	—	—	—	1.0	—
Boys Oblique Dentate	—	—	—	—	—	2.0
Miscellaneous	6.0	46.0	13.0	19.0	21.0	3.0
Totals	99.0	100.0	99.0	101.0	99.0	101.0

TABLE 15—*Rim sherd seriation for seven Middleport substage sites*

SITE POTTERY TYPES IN PERCENTAGE	Nodwell (60)	Robb (184)	Millroy (129)	Middleport (308)	Kienuka (131)	Inverhuron (235)	Pound (676)
Middleport Oblique	43.0	51.0	33.0	15.0	12.0	12.0	16.0
Lawson Incised	18.0	7.0	9.0	12.0	11.0	22.0	7.0
Ontario Horizontal	5.0	16.0	8.0	38.0	15.0	9.0	24.0
Iroquois Linear	13.0	14.0	—	—	8.0	3.0	—
Middleport Criss-cross	3.0	2.0	1.0	17.0	—	—	3.0
Pound Necked	—	—	19.0	5.0	—	10.0	46.0
Lawson Opposed	3.0	1.0	2.0	—	2.0	6.0	P
Huron Incised	2.0	3.0	5.0	—	18.0	5.0	—
Ontario Oblique	2.0	—	1.0	8.0	1.0	2.0	—
Black Necked	2.0	P	6.0	—	—	3.0	—
Ripley Plain	—	2.0	—	1.0	1.0	4.0	P
Sidey Crossed	5.0	—	—	—	—	4.0	—
Syracuse Incised	2.0	—	1.0	—	—	—	—
Sidey Notched	—	1.0	—	—	—	—	—
Ripley Collared	—	1.0	—	—	—	—	—
Richmond Mills	—	—	2.0	—	—	—	—
Niagara Collared	—	—	—	2.0	2.0	—	1.0
Lalonde High Collar	—	—	—	P	—	13.0	—
Seed Incised	—	—	—	—	—	5.0	—
Pound Blank	—	—	—	—	—	—	3.0
Miscellaneous	—	2.0	10.0	—	30.0	2.0	—
Totals	98.0	100.0	97.0	98.0	100.0	100.0	100.0

TABLE 16—*Rim sherd seriation for seven Southern division sites of the Huron-Petun branch*

POTTERY TYPES IN PERCENTAGE / SITES	Doncaster (314)	Draper (816)	Black Creek (378)	McDonald (259)	Parsons (647)	Woodbridge (226)	Seed (355)
Black Necked	56.0	35.0	30.0	20.0	8.0	2.0	4.0
Huron Incised	4.0	17.0	23.0	12.0	16.0	35.0	30.0
Lawson Incised	2.0	5.0	11.0	22.0	31.0	11.0	6.0
Lawson Opposed	5.0	2.0	3.0	12.0	15.0	2.0	3.0
Pound Necked	11.0	7.0	3.0	12.0	11.0	—	—
Ontario Horizontal	2.0	2.0	12.0	3.0	—	4.0	1.0
Sidey Notched	3.0	6.0	—	1.0	—	19.0	5.0
Middleport Oblique	3.0	P	3.0	5.0	—	—	—
Warminster Horizontal	1.0	P	5.0	P	—	1.0	1.0
Warminster Crossed	—	14.0	—	1.0	—	—	1.0
Sidey Crossed	—	P	—	—	—	1.0	1.0
Seed Incised	—	1.0	1.0	2.0	—	7.0	26.0
Seed Corded	—	P	—	—	—	2.0	10.0
Onondaga Triangular	—	2.0	2.0	1.0	10.0	4.0	—
Lalonde High Collar	3.0	3.0	P	1.0	3.0	P	P
Niagara Collared	1.0	1.0	2.0	—	—	—	—
Ripley Plain	—	—	—	—	—	—	1.0
Pound Blank	1.0	—	—	—	1.0	—	—
Cayuga Horizontal	—	—	—	—	—	5.0	1.0
Cayaduta Incised	—	—	—	—	—	3.0	1.0
Syracuse Incised	2.0	—	—	—	—	—	1.0
Richmond Mills Incised	1.0	—	2.0	P	—	1.0	1.0
Roebuck Low Collared	—	1.0	—	—	—	—	1.0
Durfee Underlined	—	1.0	1.0	2.0	—	1.0	1.0
Dutch Hollow Notched	—	P	—	5.0	1.0	—	2.0
Baum Corded	—	—	P	—	—	P	2.0
Otstungo Notched	—	1.0	—	—	—	—	—
Ripley Collared	—	1.0	—	—	—	—	—
Miscellaneous	3.0	2.0	1.0	2.0	4.0	2.0	1.0
Totals	98.0	101.0	99.0	101.0	100.0	100.0	100.0

TABLE 17—*Revised rim sherd seriation of the Lalonde site, a component of the Northern division of the Huron-Petun branch*

POTTERY TYPES IN PERCENTAGE	Lalonde (228)
Lalonde High Collar	39.0
Huron Incised/Lawson Incised/Lawson Opposed/Sidey Notched	25.0
Black Necked	7.0
Ontario Horizontal/Middleport Oblique	5.0
Copeland Incised	4.0
Miscellaneous	19.0
Total	99.0

TABLE 18—*Rim sherd seriation of the Copeland site, a component of the Northern division of the Huron-Petun branch*

POTTERY TYPES IN PERCENTAGE	Copeland (2,645)
Lalonde High Collar	25.0
Huron Incised	21.0
Black Necked	21.0
Sidey Notched	13.0
*Lawson Incised	7.0
Sidey Crossed	4.0
Copeland Incised	2.0
Middleport Oblique	2.0
Warminster Horizontal	2.0
Warminster Crossed	1.0
Ontario Oblique	P
Niagara Collar	P
Dutch Hollow Notched	P
Miscellaneous	1.0
Total	99.0

*Lawson Opposed was included with the Lawson Incised pottery type in this analysis.

TABLE 19—*Rim sherd seriation for six Fusion sites of the Huron-Petun branch*

SITES POTTERY TYPES IN PERCENTAGE	Bosomworth (691)	Sidey-Mackay (278)	Graham-Rogers (443)	MacMurchy (1,076)	Orr Lake (346)	Warminster (291)
Huron Incised	16.0	28.0	14.0	33.0	45.0	44.0
Sidey Notched	—	22.0	53.0	48.0	11.0	13.0
Warminster Crossed	11.0	8.0	2.0	—	10.0	22.0
Lawson Incised	31.0	5.0	1.0	—	2.0	1.0
Black Necked	19.0	5.0	—	—	3.0	2.0
Lalonde High Collar	11.0	—	1.0	2.0	—	—
Seed Incised	—	8.0	4.0	2.0	1.0	—
Lawson Opposed	5.0	4.0	—	—	2.0	—
Ontario Horizontal	—	1.0	—	—	1.0	1.0
Pound Necked	6.0	—	—	—	—	—
Niagara Collared	—	—	1.0	—	—	—
Warminster Horizontal	—	—	—	—	—	13.0
Onondaga Triangular	—	1.0	—	—	—	—
Seed Corded	—	—	—	1.0	—	—
Cayudata Incised	—	4.0	—	—	—	—
Genoa Frilled	—	—	—	—	20.0	2.0
Syracuse Incised	—	1.0	—	—	—	—
Richmond Incised	—	3.0	1.0	—	—	—
Roebuck Low Collared	—	1.0	—	—	—	—
Durfee Underlined	—	2.0	—	—	—	—
Sidey Crossed	1.0	3.0	—	—	1.0	—
Seneca Barbed	—	—	—	—	1.0	1.0
Dutch Hollow Notched	—	—	4.0	2.0	—	—
Susquehannock High Collar	—	—	10.0	—	—	—
Miscellaneous	—	4.0	10.0	12.0	3.0	1.0
Totals	100.0	100.0	101.0	100.0	100.0	100.0

TABLE 20—*Rim sherd seriation for two Neutral division and six Erie division sites of the Neutral-Erie branch*

POTTERY TYPES IN PERCENTAGE / SITES	Southwold (586)	Lawson (576)	Shelby (232)	Buffam (133)	Eaton (93)	Goodyear (420)	Ripley (552)	Green Lake (282)
Lawson Incised	44.0	53.0	28.0	41.0	36.0	31.0	30.0	20.0
Lawson Opposed	8.0	11.0	18.0	15.0	2.0	3.0	1.0	6.0
Niagara Collared	17.0	19.0	2.0	2.0	10.0	18.0	14.0	8.0
Ripley Plain	5.0	2.0	1.0	4.0	11.0	6.0	6.0	5.0
Huron Incised	5.0	1.0	31.0	24.0	20.0	18.0	P	29.0
Pound Necked	12.0	11.0	—	—	—	1.0	—	1.0
Ontario Horizontal	2.0	1.0	—	1.0	1.0	1.0	6.0	1.0
Pound Blank	1.0	—	—	—	—	—	—	—
Seed Incised	4.0	—	—	—	—	—	—	—
Ripley Collared	—	—	1.0	1.0	—	1.0	19.0	1.0
Sidey Notched	—	—	2.0	1.0	2.0	2.0	—	1.0
Dutch Hollow Notched	—	—	1.0	2.0	—	5.0	—	7.0
Ripley Triangular	—	—	—	—	1.0	3.0	5.0	2.0
Warminster Crossed	—	—	—	—	—	1.0	P	2.0
Ripley Corded	—	—	—	—	—	—	17.0	—
Miscellaneous	3.0	2.0	16.0	9.0	16.0	11.0	1.0	17.0
Totals	101.0	100.0	100.0	100.0	99.0	101.0	99.0	100.0

PART III

Coefficient of Similarity Charts

CHART 1—*The coefficients of similarity for four Glen Meyer branch sites based on rim sherd types*

Site	Smale	Stafford	Goessens	Woodsmen
Smale	—	144	141	108
Stafford	144	—	162	111
Goessens	141	162	—	129
Woodsmen	108	111	129	—

CHART 2—*The coefficients of similarity for three Pickering branch sites based on rim sherd types*

Site	Bennett	Barrie	Boys
Bennett	—	146	88
Barrie	146	—	88
Boys	88	88	—

CHART 3—*The coefficients of similarity for four Glen Meyer branch sites and three Pickering branch sites based on rim sherd types*

Site	Smale	Stafford	Goessens	Woodsmen	Boys	Barrie	Bennett
Smale	—	144	141	108	69	46	45
Stafford	144	—	162	111	63	49	39
Goessens	141	162	—	129	58	44	34
Woodsmen	108	111	129	—	30	19	26
Boys	69	63	58	30	—	88	88
Barrie	46	49	44	19	88	—	146
Bennett	45	39	34	26	88	146	—

CHART 4—*The coefficients of similarity for four Uren substage sites and two late Pickering branch sites based on rim sherd types*

Site	Uren	Downpour	Oakfield	Elliott	Bennett	Barrie
Uren	—	142	119	120	104	88
Downpour	142	—	105	72	74	56
Oakfield	119	105	—	101	99	53
Elliott	120	72	101	—	172	144
Bennett	104	74	99	172	—	146
Barrie	88	56	53	144	146	—

CHART 5—*The coefficients of similarity for seven Middleport substage sites based on rimsherd types*

Site	Nodwell	Robb	Millroy	Inverhuron	Kienuka	Middleport	Pound
Nodwell	—	148	117	104	84	78	64
Robb	148	—	113	78	98	84	82
Millroy	117	113	—	107	97	83	105
Inverhuron	104	78	107	—	92	84	76
Kienuka	84	98	97	92	—	86	70
Middleport	78	84	83	84	86	—	112
Pound	64	82	105	76	70	112	—

CHART 6—*Coefficients of similarity for fourteen Huron-Petun branch sites based on rim sherd types.*

Site	Southern Division							Northern Division	Fusion					
	Doncaster	Draper	Black Creek	McDonald	Parsons	Woodbridge	Seed	Copeland	Bosomworth	Sidey-Mackay	Graham-Rogers	MacMurchy	Orr Lake	Warminster
Doncaster	—	123	105	103	76	40	45	99	80	50	29	26	38	29
Draper	123	—	130	111	89	79	77	112	123	99	54	55	87	83
Black Cree	105	130	—	118	86	96	84	108	96	85	44	58	64	65
McDonald	103	111	118	—	139	73	77	92	131	71	46	39	49	37
Parsons	76	89	86	139	—	70	60	77	133	63	43	42	46	38
Woodbridge	40	79	96	73	70	—	122	95	87	143	86	120	110	106
Seed	45	77	84	77	60	122	—	83	81	122	61	88	92	82
Copeland	99	112	108	92	77	95	83	—	117	105	64	77	87	83
Bosomworth	80	123	96	131	133	87	81	117	—	104	36	89	89	42
Sidey-Mackay	50	99	85	71	63	143	122	105	104	—	87	112	104	106
Graham-Rogers	29	54	44	46	43	86	61	64	36	87	—	145	63	65
MacMurchy	26	55	58	39	42	120	88	77	89	112	145	—	99	101
Orr Lake	38	87	64	49	46	110	92	87	89	104	63	99	—	144
Warminster	29	83	65	37	38	106	82	83	42	106	65	101	144	—

CHART 7—*Coefficients of similarity for two Neutral division and six Erie division sites based on rim sherd types.*

Site	Southwold	Lawson	Shelby	Buffam	Eaton	Goodyear	Ripley	Green Lake
Southwold	—	171	93	127	124	130	106	97
Lawson	171	—	90	120	109	117	99	82
Shelby	93	90	—	164	143	133	69	154
Buffam	127	120	164	—	151	142	81	140
Eaton	124	109	143	151	—	164	102	149
Goodyear	130	117	133	142	164	—	114	153
Ripley	106	99	69	81	102	114	—	79
Green Lake	97	82	154	140	149	153	79	—

PLATES I TO XIX

PLATE I

(½ nat. size)

Ontario Oblique and Glen Meyer Oblique Pottery Types

FIGS.

1 Ontario Oblique type, linear stamp motif with exterior bossing. Goessens site.
2 Ontario Oblique type, fingernail impressed motif. Goessens site.
3 Ontario Oblique type, turtle-shell impressed motif with exterior bossing. Goessens site.
4 Ontario Oblique type, linear stamp motif with exterior bossing. Stafford site.
5 Ontario Oblique type, linear stamp motif with incipient rounded castellation. Goessens site.
6 Ontario Oblique type, irregular impressed motif. Goessens site.
7 Ontario Oblique type, linear stamp motif. Smale site.
8 Glen Meyer Oblique type, exterior bossing. Stafford site.
9 Glen Meyer Oblique type, exterior bossing. Goessens site.
10 Glen Meyer Oblique type, exterior bossing. Stafford site.
11 Glen Meyer Oblique type. Woodsmen site.
12 Glen Meyer Oblique type, exterior bossing. Goessens site.
13 Glen Meyer Oblique type. Stafford site.
14 Glen Meyer Oblique type, incipient rounded castellation with punctated face. Goessens site.

PLATE I

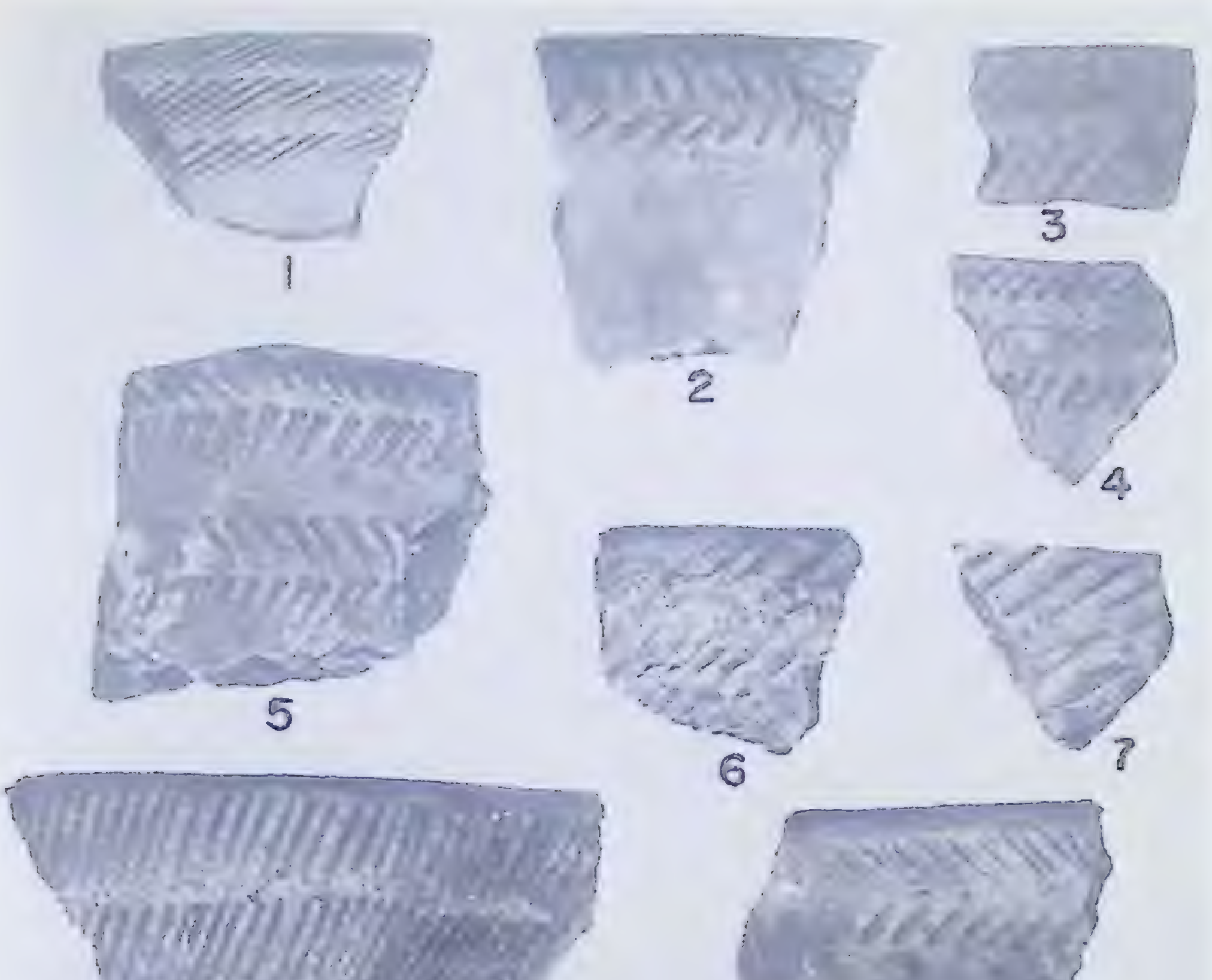


PLATE II

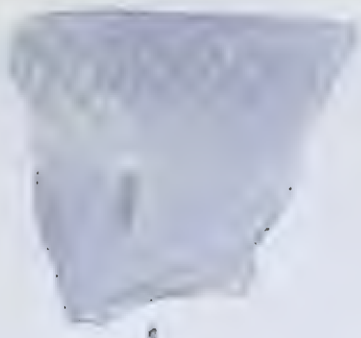
(½ nat. size)

Middleport Criss-Cross and Stafford Stamped Pottery Types

FIGS.

1 Middleport Criss-Cross type, exterior punctating. Goessens site.
2 Middleport Criss-Cross type. Stafford site.
3 Middleport Criss-Cross type. Goessens site.
4 Middleport Criss-Cross type, exterior bossing. Goessens site.
5 Middleport Criss-Cross type, exterior bossing. Stafford site.
6 Stafford Stamped type, exterior bossing. Stafford site.
7 Stafford Stamped type. Stafford site.
8 Stafford Stamped type, exterior bossing. Woodsmen site.
9 Stafford Stamped type, exterior bossing. Stafford site.
10 Stafford Stamped type, exterior bossing. Goessens site.

PLATE II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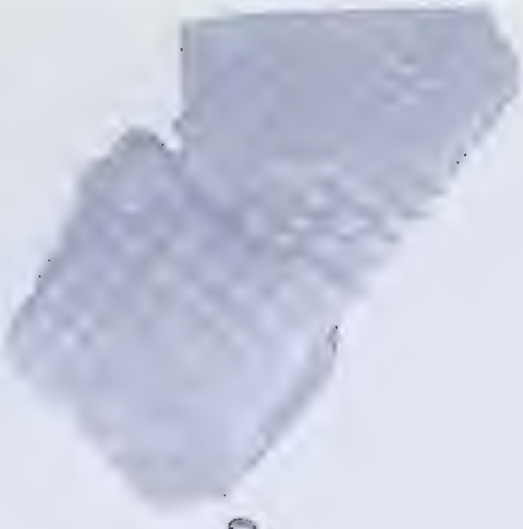
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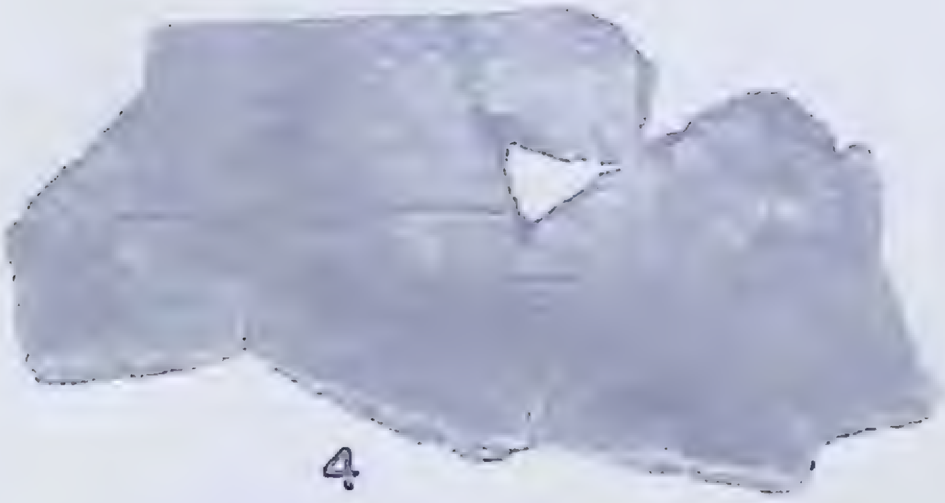
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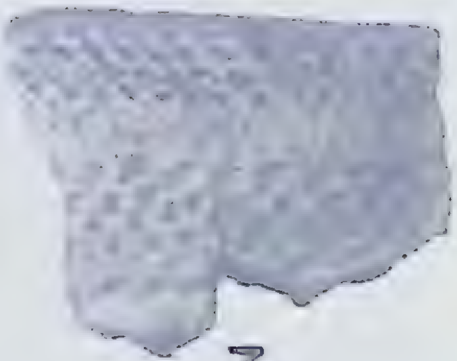
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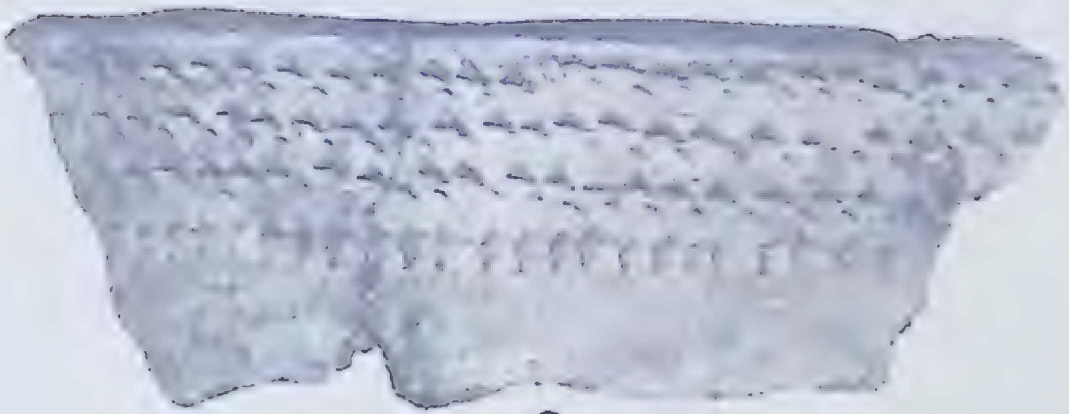
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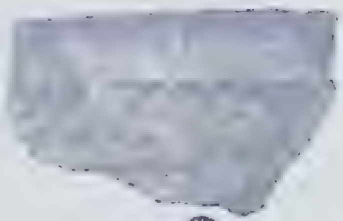
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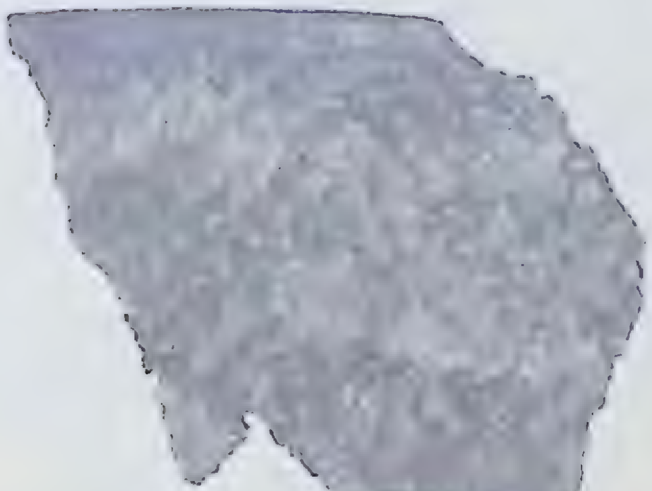
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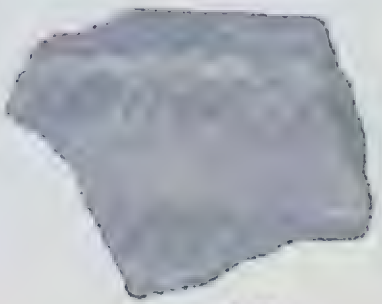
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PLATE III

(½ nat. size)

Ripley Plain, Woodsmen Corded, Glen Meyer Linear Stamped, and Goessens Punctate Pottery Types

FIGS.

1 Ripley Plain type. Goessens site.
2 Ripley Plain type, incipient rounded castellation. Stafford site.
3 Ripley Plain type, incipient pointed castellation with exterior bossing. Goessens site.
4 Woodsmen Corded type, exterior bossing. Goessens site.
5 Woodsmen Corded type, exterior bossing. Woodsmen site.
6 Woodsmen Corded type. Goessens site.
7, 8 Glen Meyer Linear Stamped type. Goessens site.
9 Glen Meyer Linear Stamped type. Smale site.
10 Goessens Punctate type. Stafford site.
11,12 Goessens Punctate type. Goessens site.

PLATE III

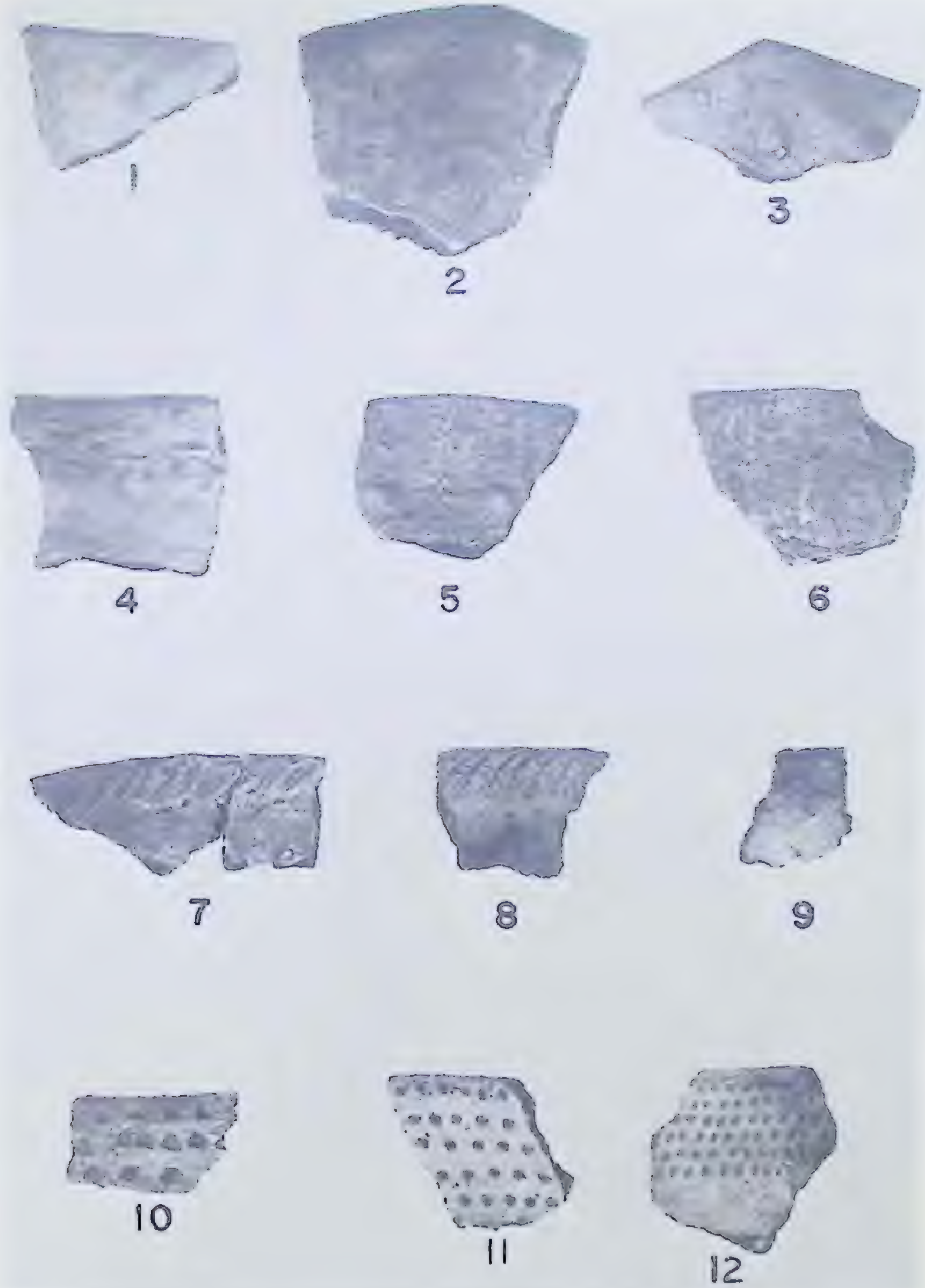


PLATE IV

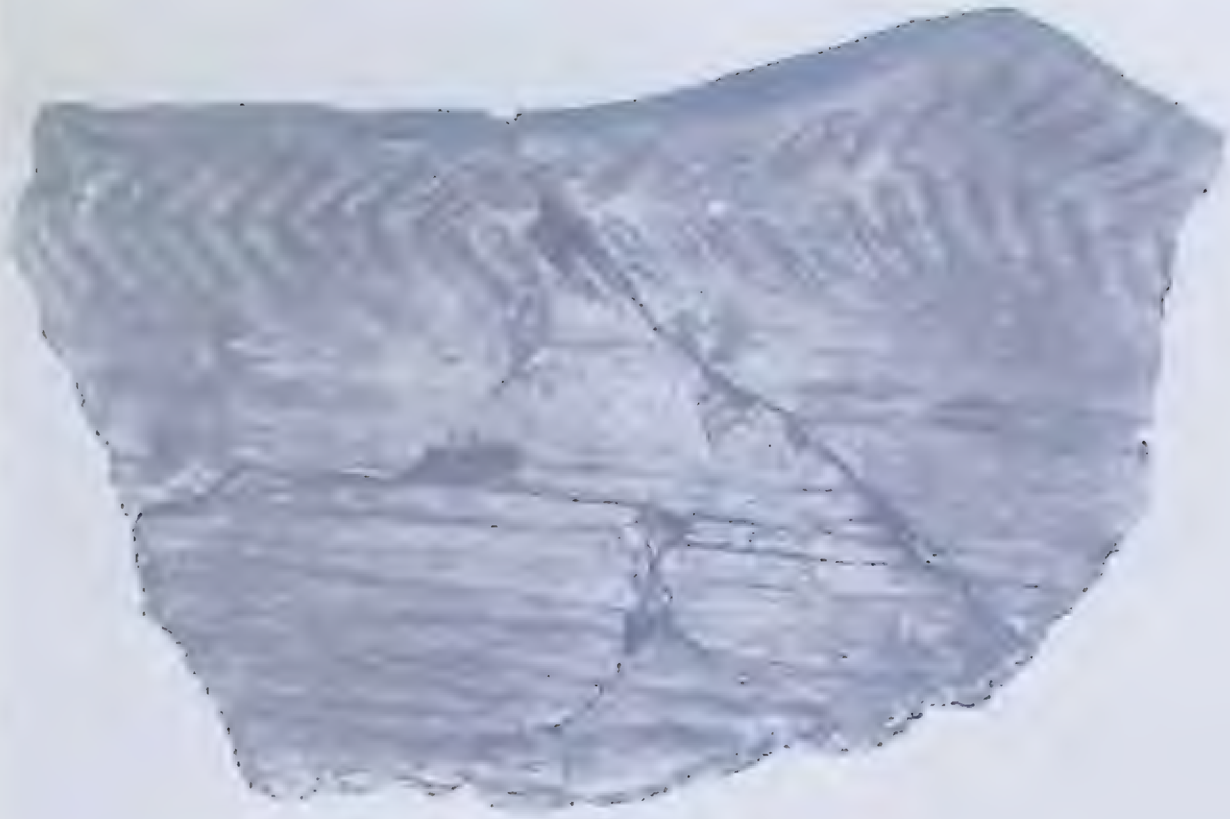
(½ nat. size)

Glen Meyer Necked, Goessens Necked, and Goessens Oblique Pottery Types

FIGS.

1 Glen Meyer Necked type, incipient pointed castellation and exterior bossing. Faulds site.
2 Glen Meyer Necked type. Goessens site.
3 Glen Meyer Necked type, incipient pointed castellation. Woodsmen site.
4, 5 Goessens Necked type. Goessens site.
6 Goessens Oblique type. Woodsmen site.
7 Goessens Oblique type. Smale site.
8 Goessens Oblique type, exterior bossing. Goessens site.

PLATE IV



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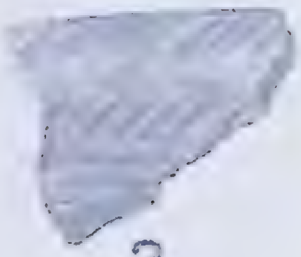

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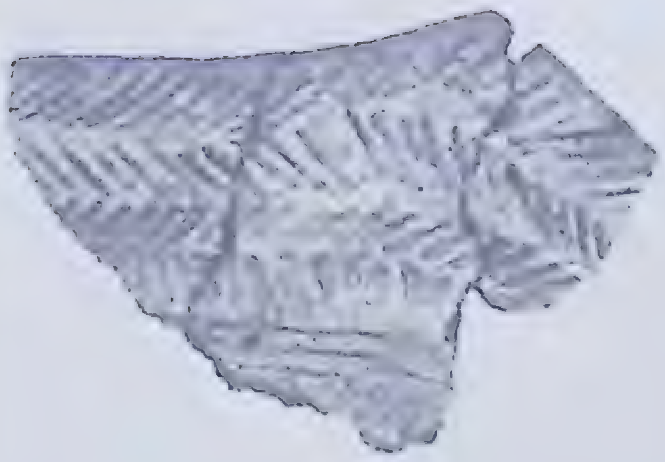

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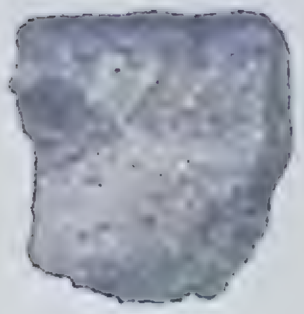

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PLATE V

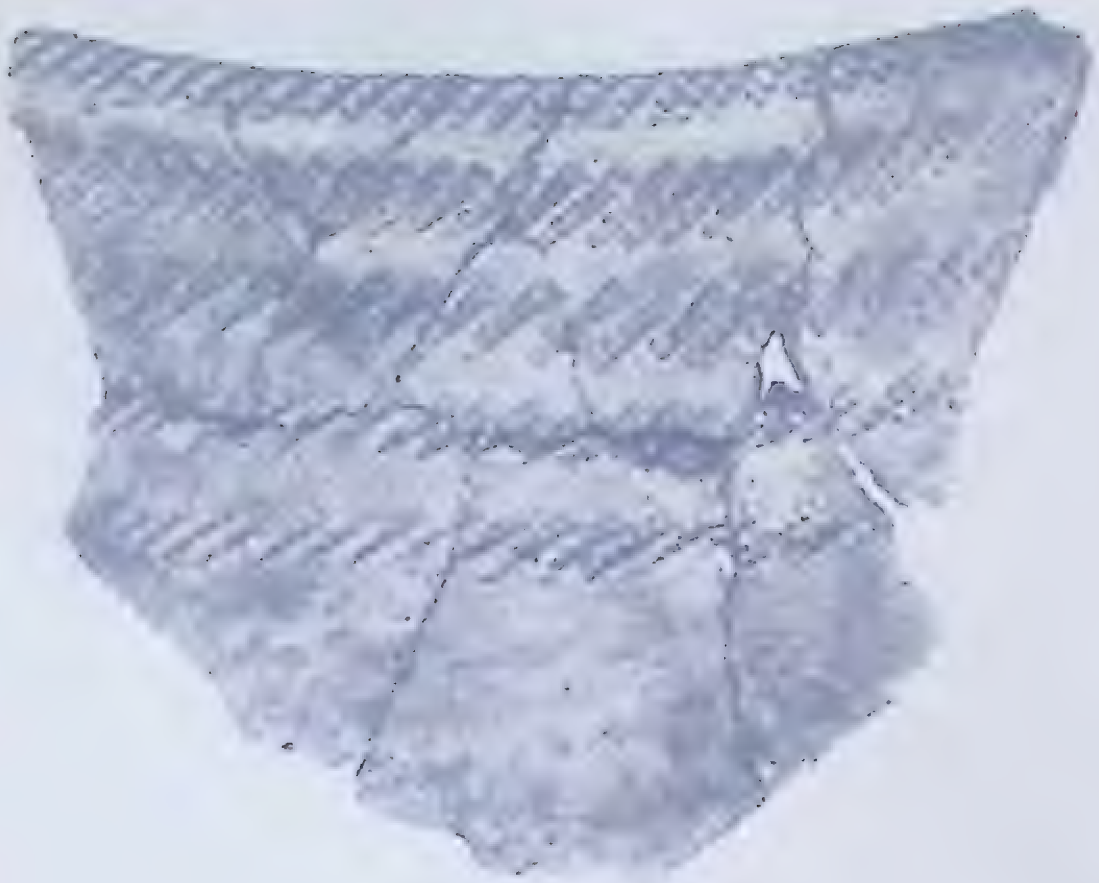
(½ nat. size)

Stafford Dentate, Ontario Horizontal, Iroquois Linear, and Ontario Oblique Pottery Types

FIGS.

1, 2 Stafford Dentate type. Stafford site.
3–5 Ontario Horizontal type varieties. Downpour site.
6, 7 Iroquois Linear type varieties. Downpour site.
8 Ontario Oblique type. Downpour site.

PLATE V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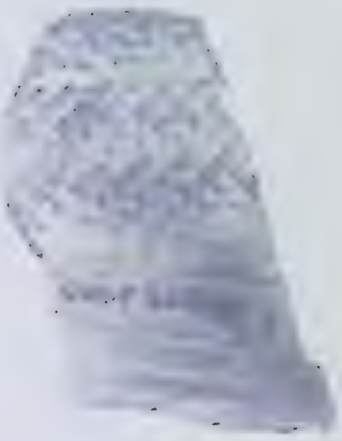
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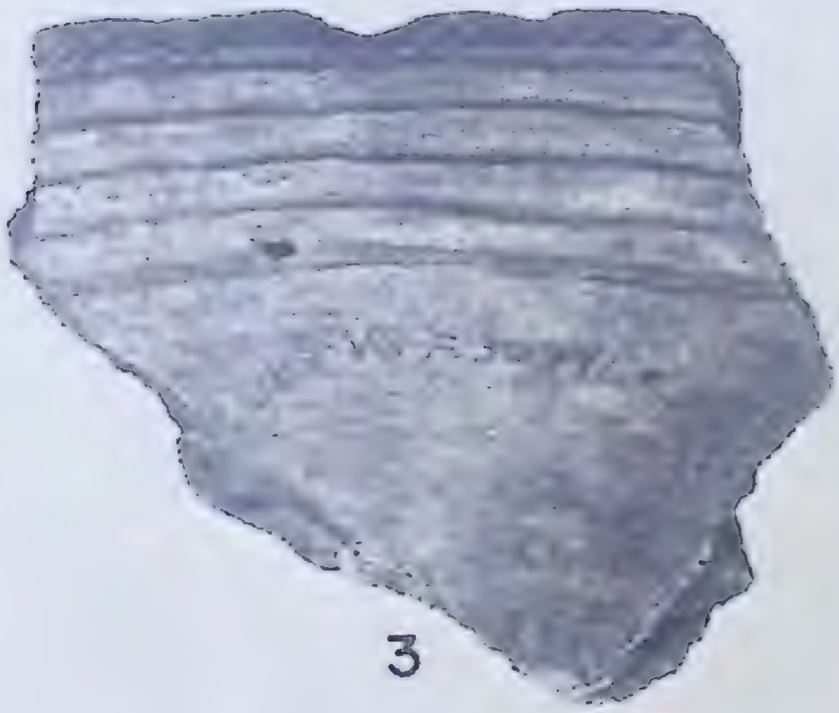
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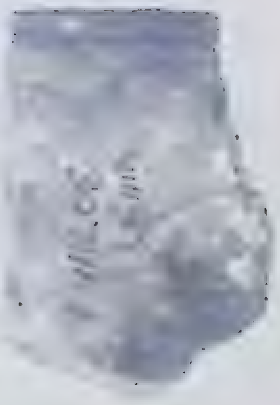
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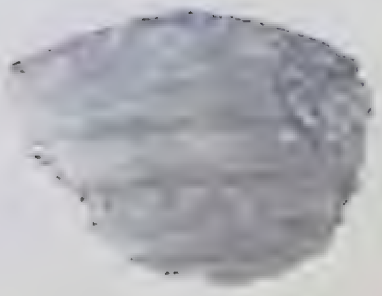
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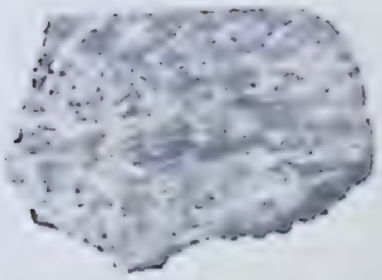
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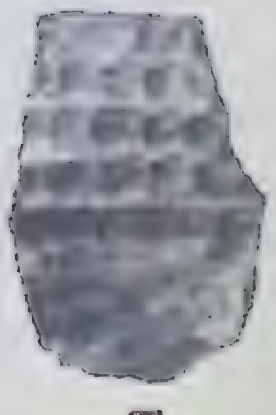
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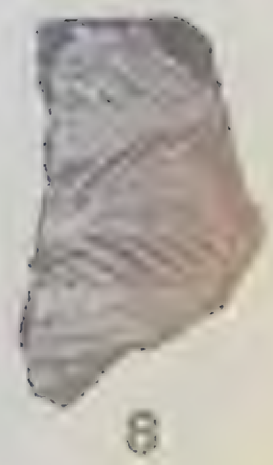
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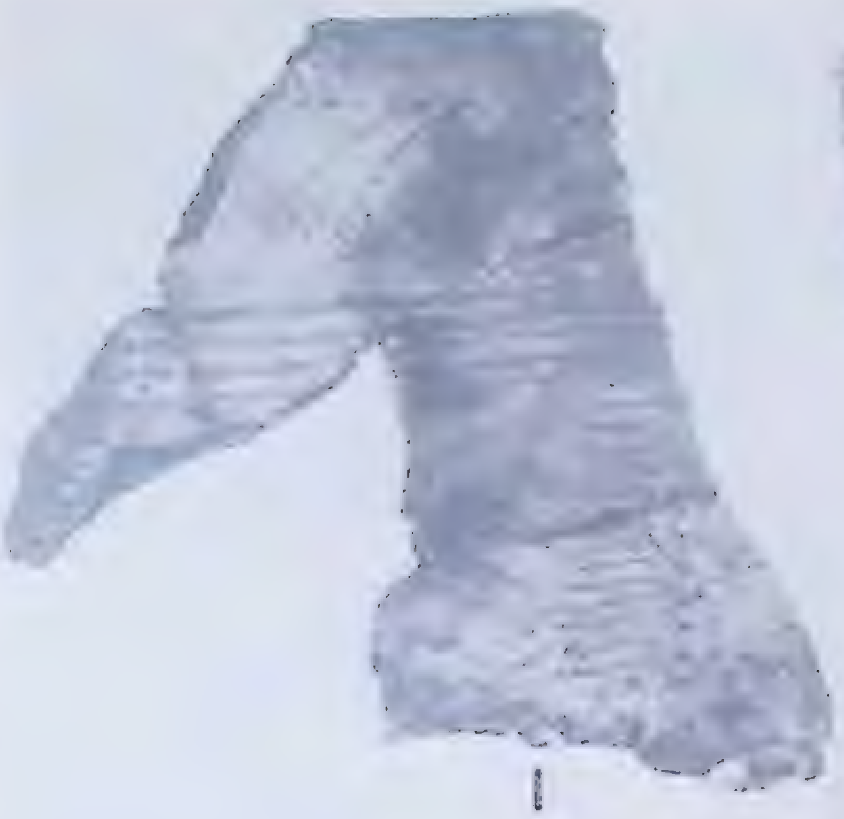
PLATE VI

(½ nat. size)

Miscellaneous Glen Meyer Branch Rim Sherds

FIGS.	
1	Goessens site.
2	Stafford site.
3	Woodsmen site.
4	Stafford site.
5	Reid site.
6, 7	Goessens site.
8	Too site.

PLATE VI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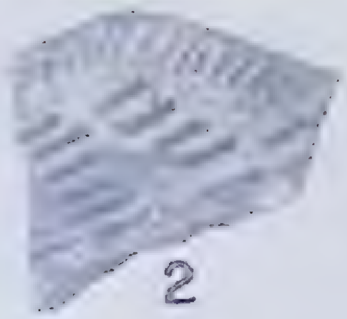
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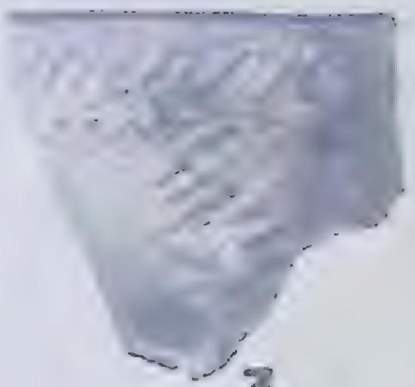
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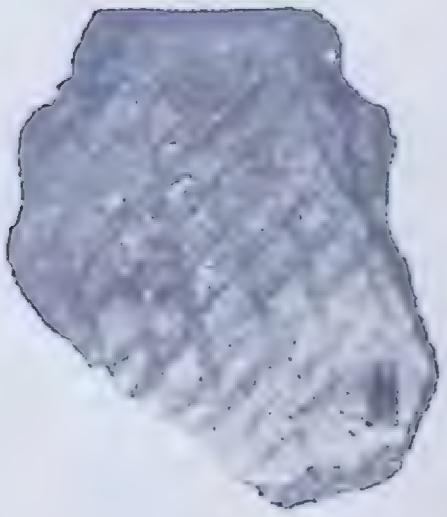
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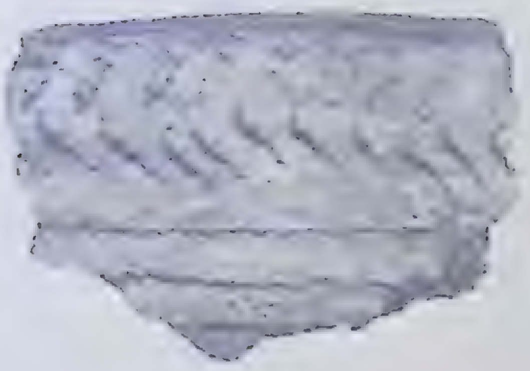
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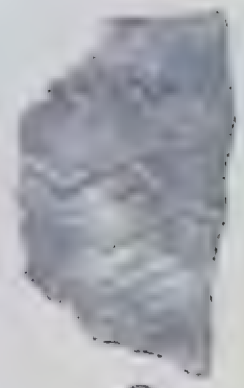
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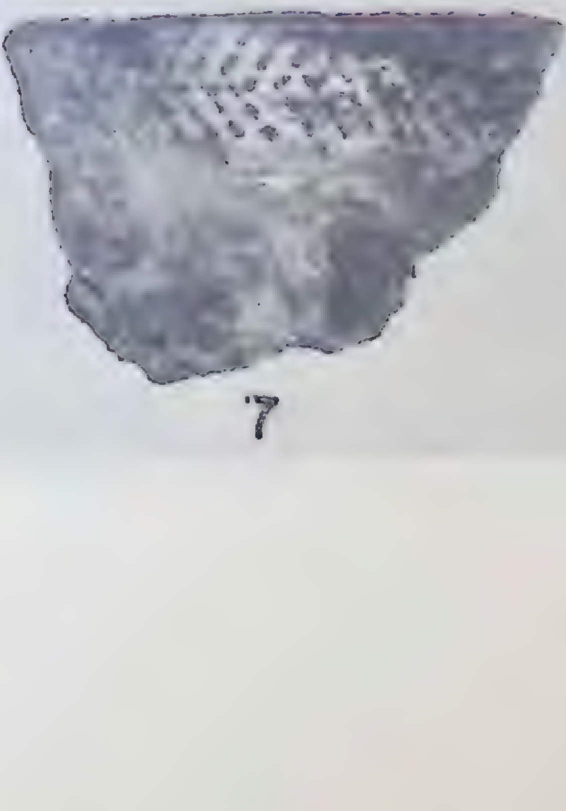
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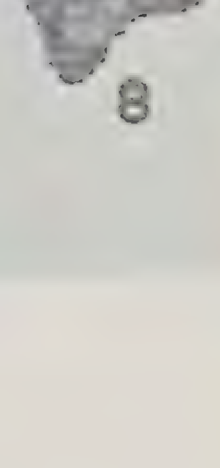
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PLATE VII

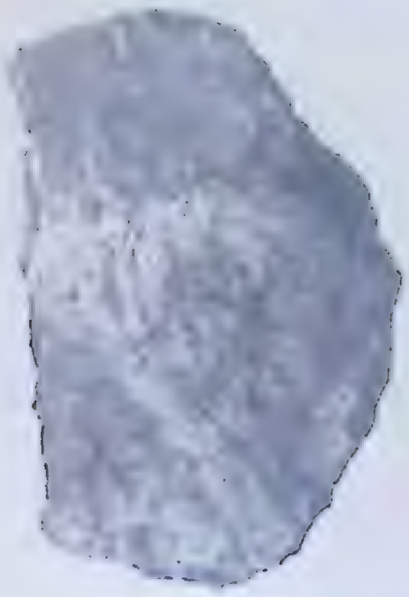
(½ nat. size)

Body Sherd Varieties of the Glen Meyer Branch

FIGS.

1–3 Examples of scarified body sherds. From left to right Goessens site and Stafford site.
4 Twined fabric impressed body sherd with red ochre adhering to the surface. Woodsmen site.
5 Twined fabric impressed body sherd. Goessens site.
6 Cord malleated body sherd. Stafford site.
7–9 Examples of smoothed-over cord body sherds. From left to right Goessens, Woodsmen, and Stafford sites.
10 Scarified-over cord body sherd. Woodsmen site.
11 Ribbed paddle body sherd. Stafford site.
12 Incised body sherd. Smale site.

PLATE VII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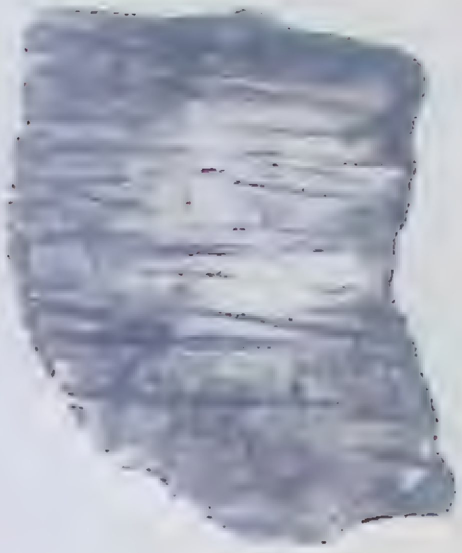
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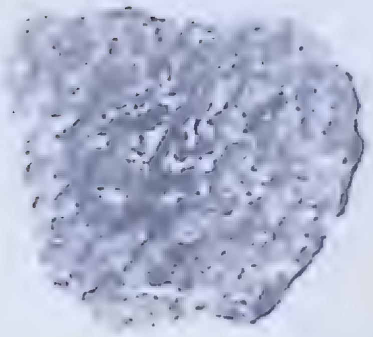
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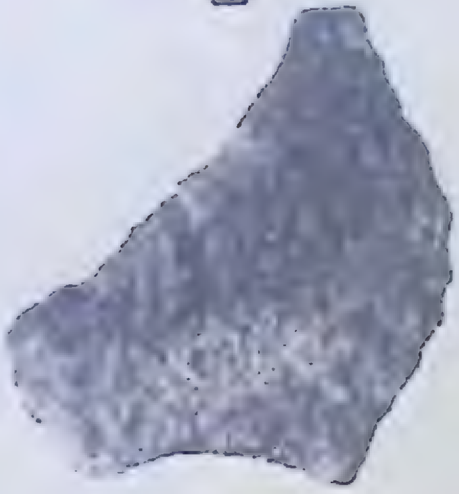
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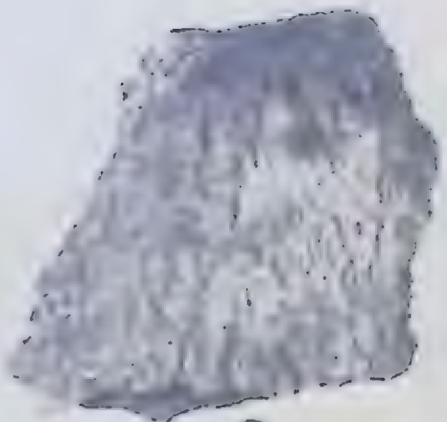
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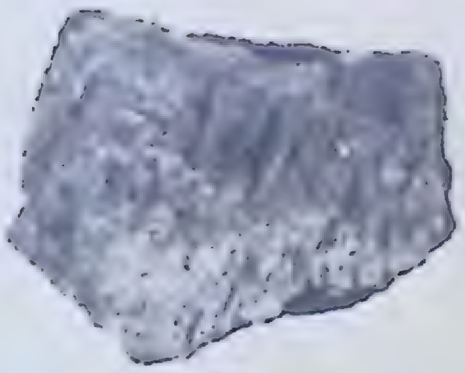
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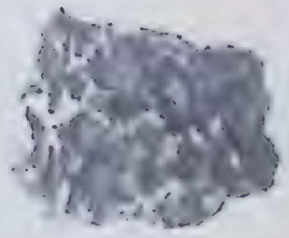
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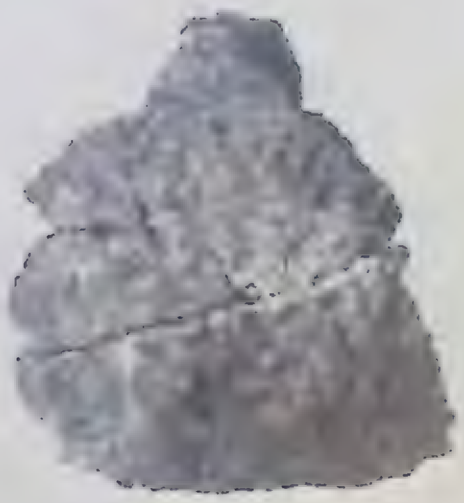
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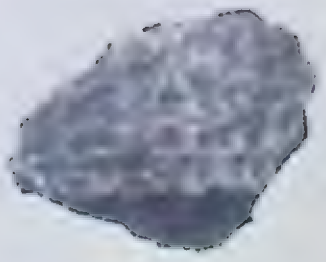
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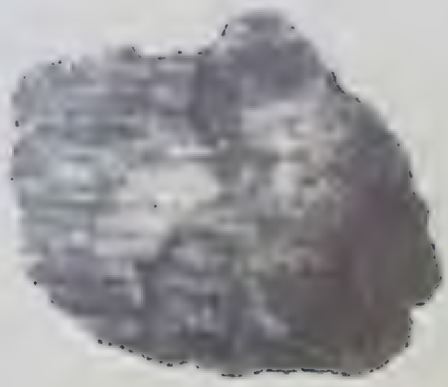
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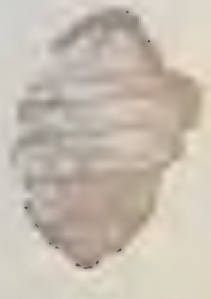
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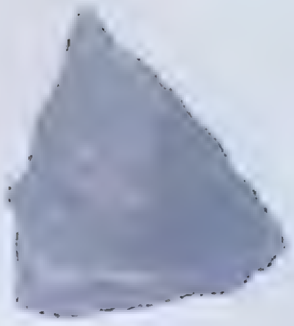
PLATE VIII

(½ nat. size)

Neck and Shoulder Sherd Varieties of the Glen Meyer Branch and a Comparative Uren Substage Site

FIGS.

1, 2	Painted neck sherds. From left to right Stafford site and Downpour site.
3	Shoulder sherd with fabric impressed body and plain neck. Goessens site.
4	Shoulder sherd with smoothed-over cord body and scarified neck. Stafford site.
5	Shoulder sherd with smoothed-over cord body and plain neck with oblique gashes at the demarcation of these two areas. Woodsmen site.
6	Shoulder sherd with ribbed paddle impressed body and neck. Downpour site.
7	Shoulder sherd with scarified body and plain neck. Stafford site.



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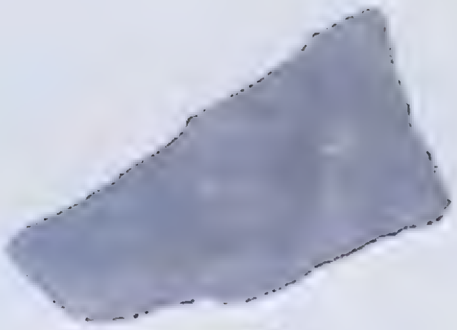

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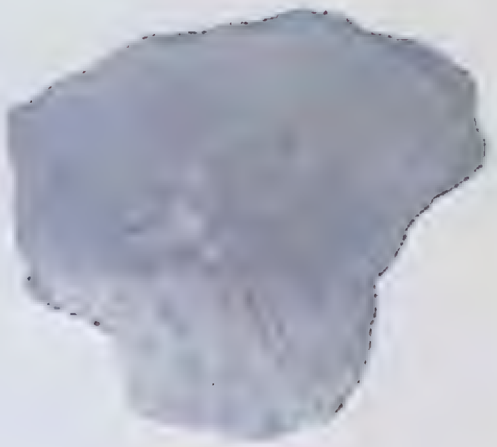

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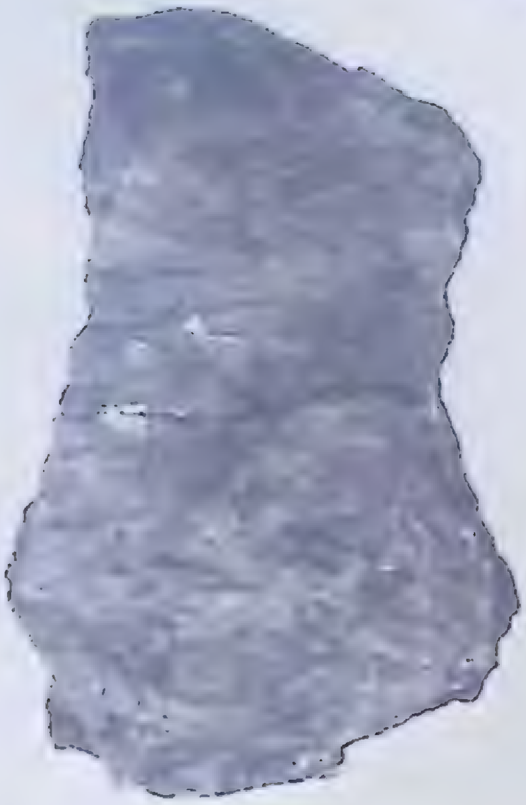

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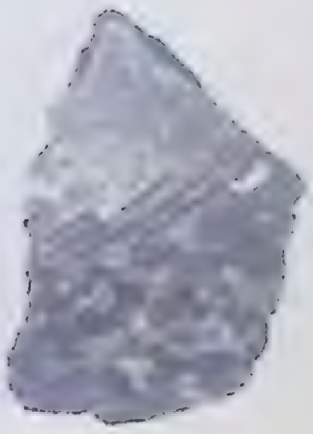

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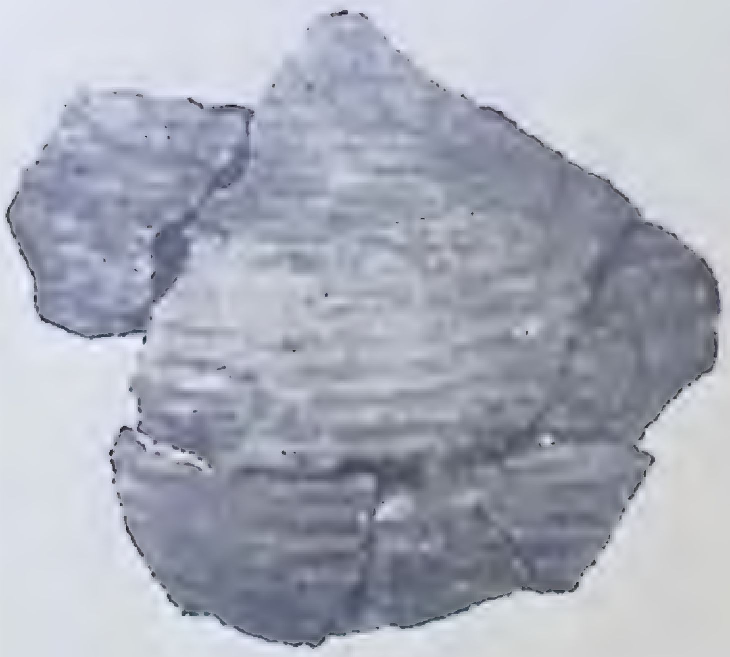

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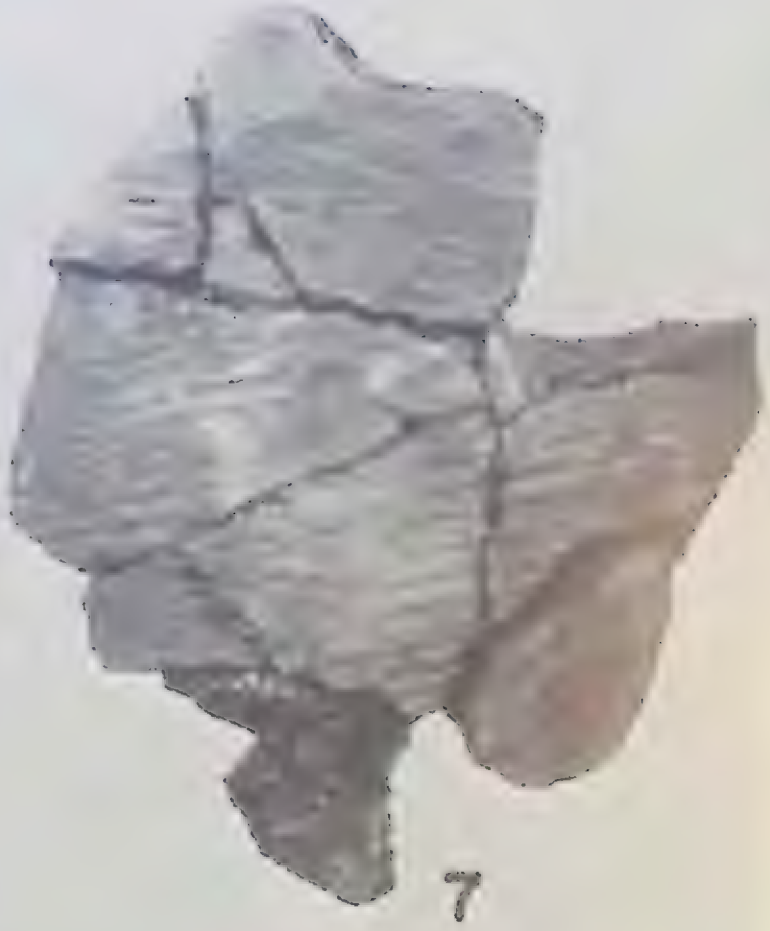

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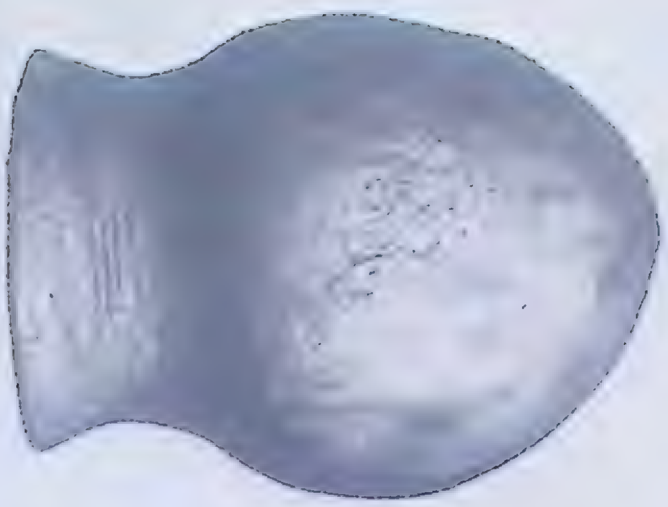
PLATE IX

(½ nat. size)

Reconstructed Vessels of the Glen Meyer Branch

FIGS.

1 Goessens Necked type vessel. Faulds site.
2 Stafford Stamped type vessel. Stafford site.
3 Glen Meyer Necked type vessel. Woodsmen site.



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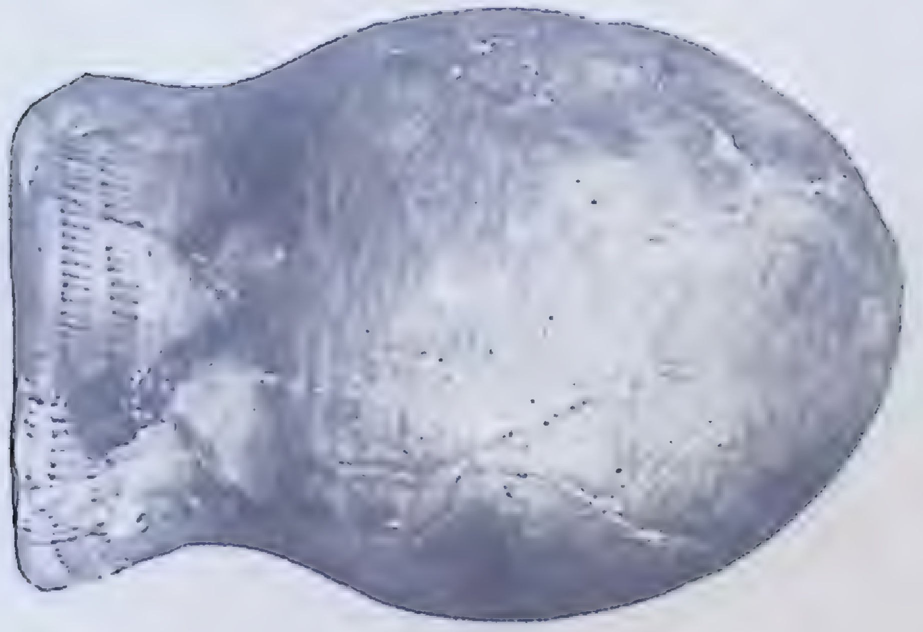

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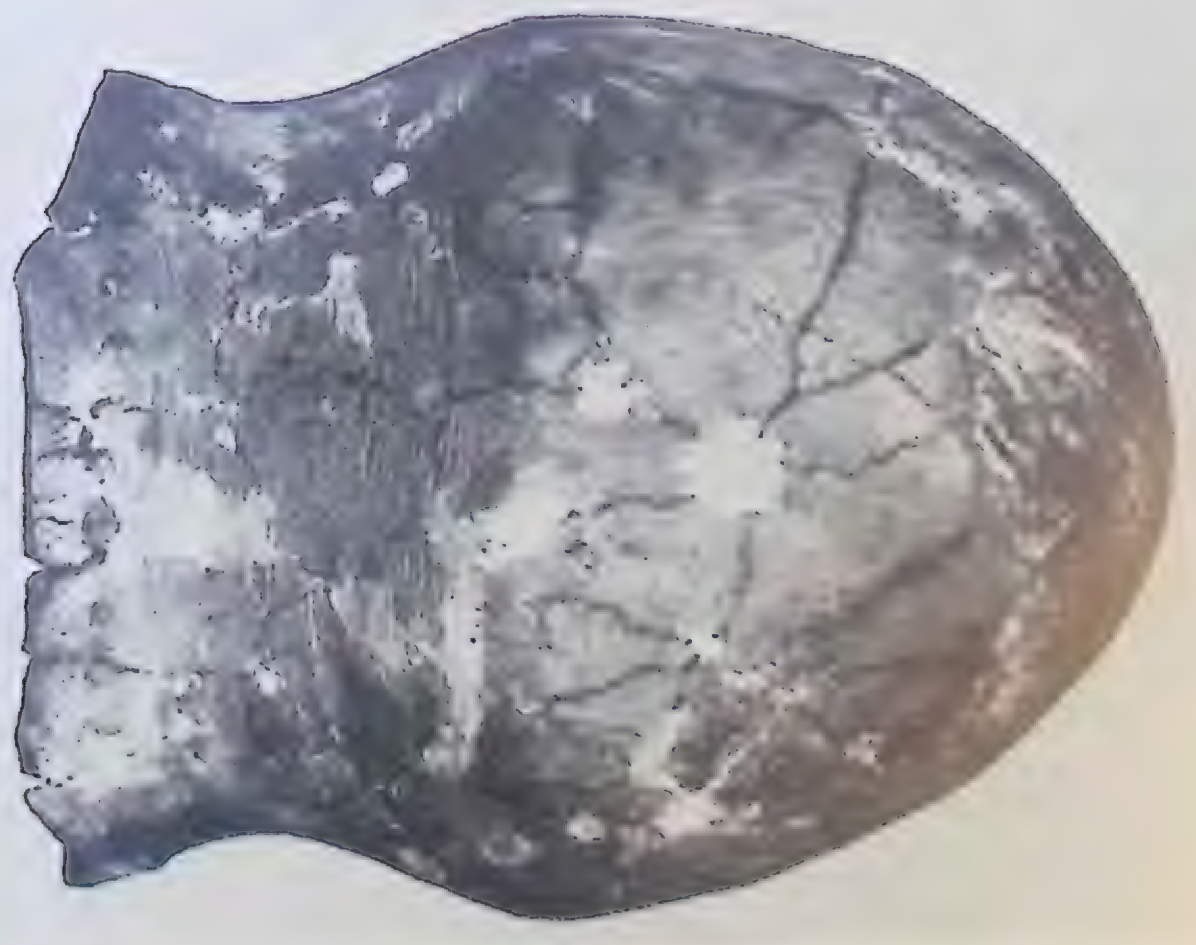

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PLATE X

(½ nat. size)

Juvenile Ceramics, Pipes, and Projectile Points of the Glen Meyer Branch

FIGS.

1–5 Examples of juvenile rim sherds. From left to right Stafford site, Goessens site, Goessens site, Stafford site, and Stafford site.
6, 7 Pipe bowls. Smale site.
8–11 Pipe bowls. Goessens site.
12 Engraved decoration on pipe stem filled with ink for illustration purposes. Goessens site.
13 Plain pipe bowl fragment. Stafford site.
14 Crude, complete pipe. Stafford site.
15 Plain pipe stem. Stafford site.
16 Dorsal view of rectangular pipe stem. Smale site.
17–21 Varieties of triangular projectile points. From left to right Woodsmen site, Goessens site, Goessens site, Stafford site, and Goessens site.
22–29 Minor projectile point varieties. From left to right, Goessens site, Goessens site, Goessens site, Stafford site, Goessens site, Goessens site, Stafford site, and Stafford site.

PLATE X

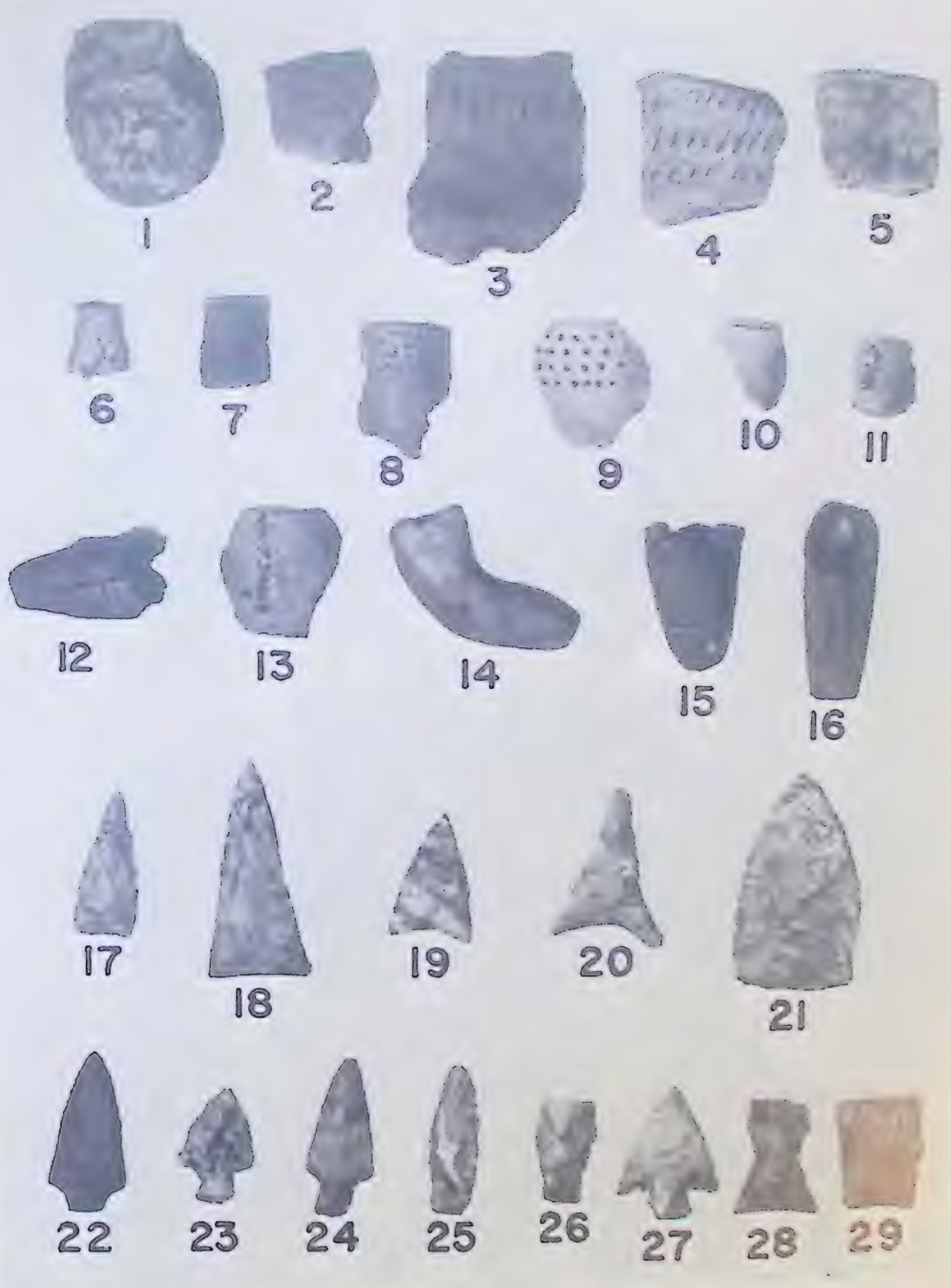


PLATE XI

(½ nat. size)

Miscellaneous Lithic Traits of the Glen Meyer Branch

Figs.

1–4 Archaic and Middle Woodland projectile points. From left to right, Goessens site, Stafford site, Stafford site, and Smale site.
5 Triangular blade. Woodsmen site.
6 Asymmetrical triangular blade. Stafford site.
7, 8 Ovate blades. From left to right, Goessens site and Smale site.
9 Flake with bifacially retouched edge. Smale site.
10, 11 Glen Meyer end scraper type. From left to right, Goessens site and Stafford site.
12, 13 Random flake scrapers. From top to bottom, Stafford site and Goessens site.
14 Typical spokeshave scraper. Goessens site.
15 Atypical spokeshave scraper. Stafford site.
16 Thumbnail scraper. Stafford site.
17 Side-notched thumbnail scraper. Goessens site.
18 Bifacially flaked triangular blade with scraper base. Goessens site.

PLATE XI

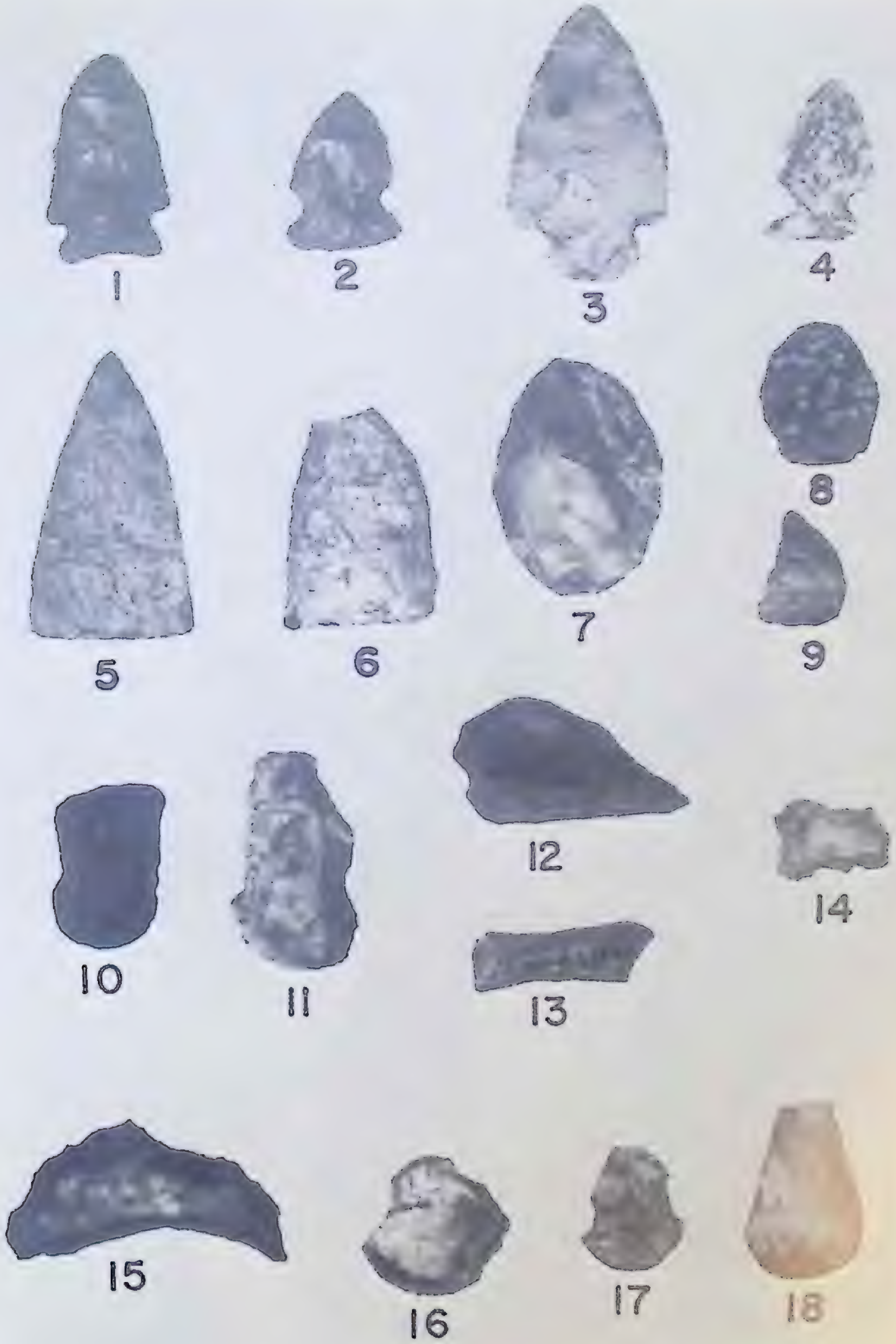


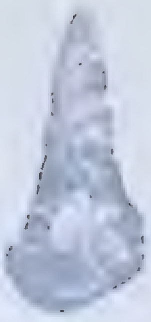
PLATE XII

(½ nat. size)

Miscellaneous Lithic Traits of the Glen Meyer Branch

FIGS.

1 Bulbous drill variety. Goessens site.
2 Simple drill variety. Goessens site.
3 Triangular drill variety. Goessens site.
4 Winged drill variety. Goessens site.
5 Flake drill variety. Smale site.
6, 7 Flaked implements with hammering facets at ends. From left to right, Goessens site and Stafford site.
8–11 Specialized tools. From left to right, Goessens site, Goessens site, Smale site and Smale site.
12 Ovate bifacially flaked chopper. Stafford site.
13 Polished adze with pecked lashing indentations outlined in ink for illustration purposes. Goessens site.
14 Typical polished adze. Goessens site.
15 Large polished adze. Stafford site.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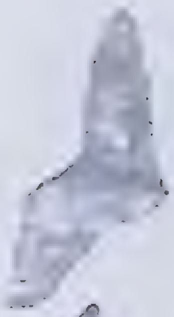
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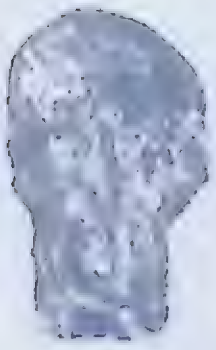
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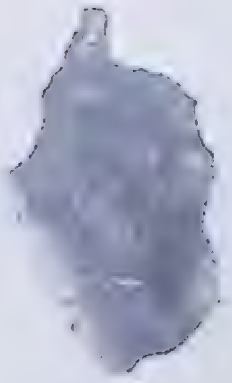
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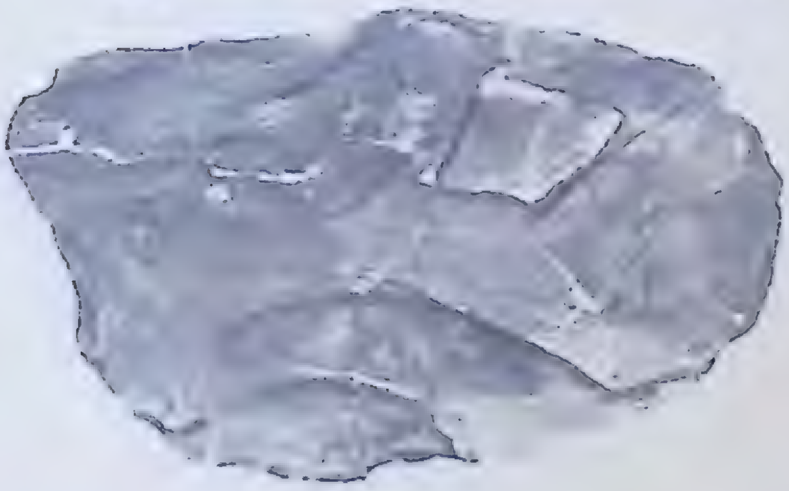
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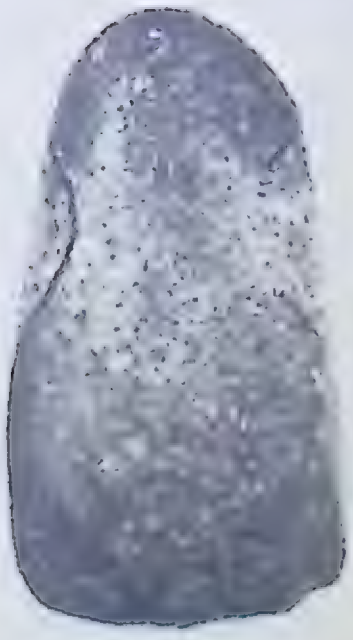
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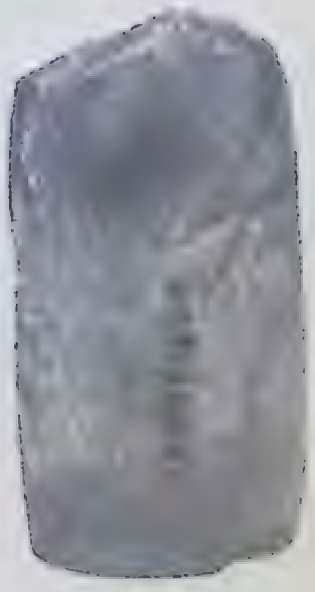
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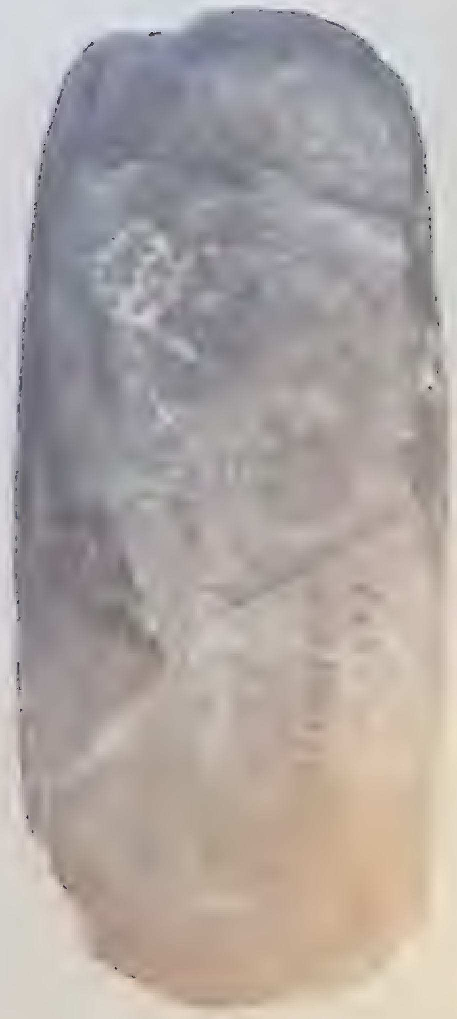
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PLATE XIII

(½ nat. size)

Miscellaneous Lithic Traits of the Glen Meyer Branch

Figs.	
1	Typical sandstone abrader. Goessens site.
2	Flint nodule hammerstone. Woodsmen site.
3	Circular hammerstone. Stafford site.
4, 5	Bi-pitted anvil stones with encircling hammering facets along the circumference. From left to right, Goessens site, and Stafford site.
6	Atypical slate pebble pendant. Goessens site.
7	Typical slate pebble pendant. Goessens site.
8	Red ochre paint stone. Stafford site.
9	Iron pyrites fragment. Goessens site.
10	Tubular steatite bead fragment. Smale site.

PLATE XIII

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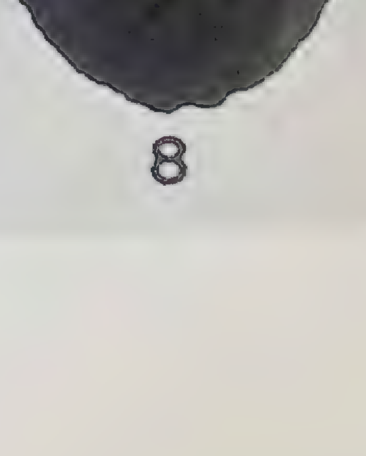
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PLATE XIV

(½ nat. size)

Bone and Copper Artifacts of the Glen Meyer Branch

FIGS.

1–5 Varieties of bone awls. Goessens site.
6 Bird bone bead fragment. Woodsmen site.
7 Complete bird bone bead. Goessens site.
8 Perforated fragment of turtle shell. Woodsmen site.
9 Worked fragment of turtle shell. Woodsmen site.
10 Antler tine projectile point. Goessens site.
11 Tubular bone bead or handle. Goessens site.
12 Bone splinter blunted at tip. Goessens site.
13 Cut antler tine, possibly a flaker. Goessens site.
14 Rib fragment with grinding along the edges. Goessens site.
15 Native copper pendant or bead. Stafford site.

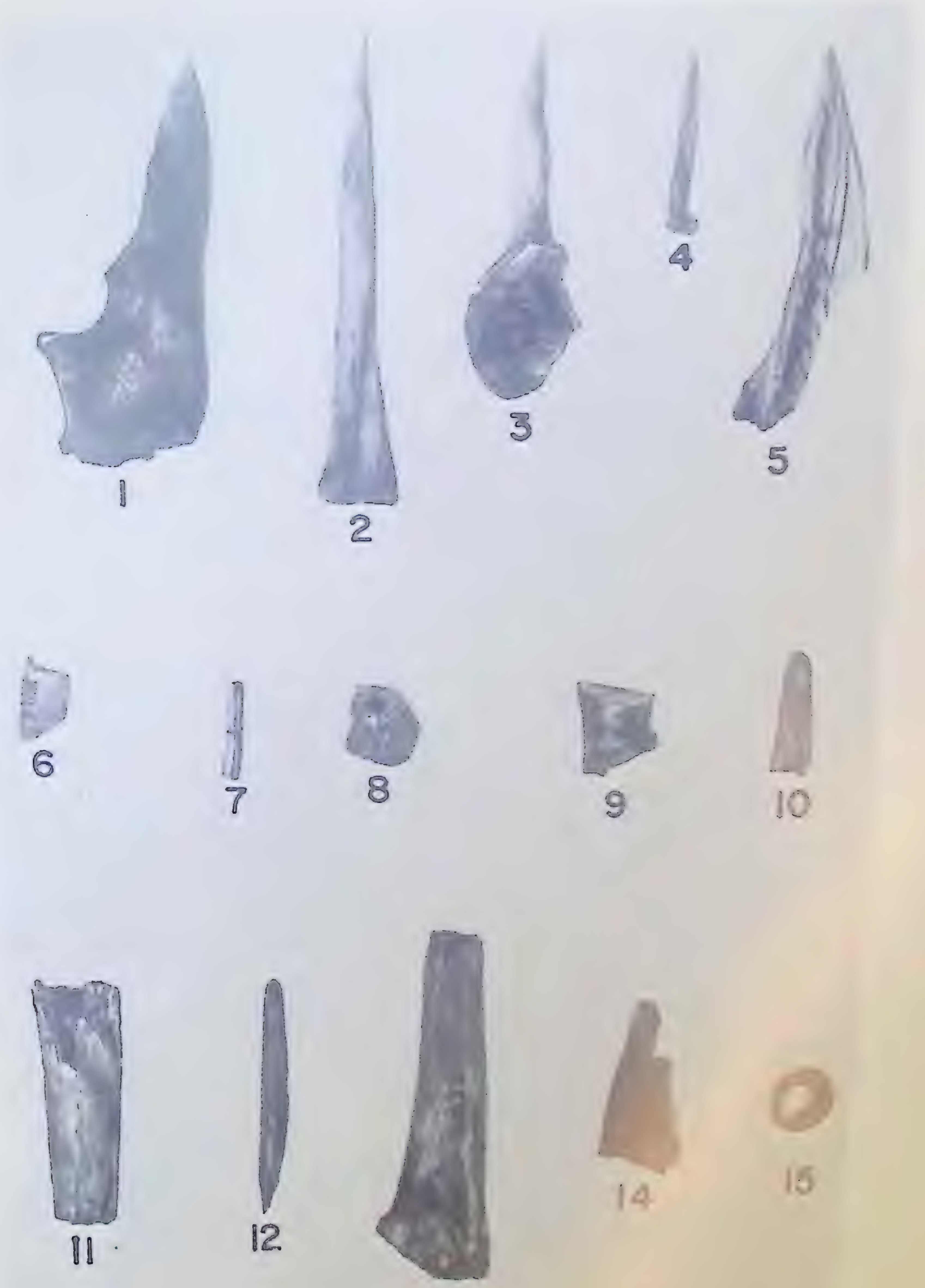
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PLATE XV

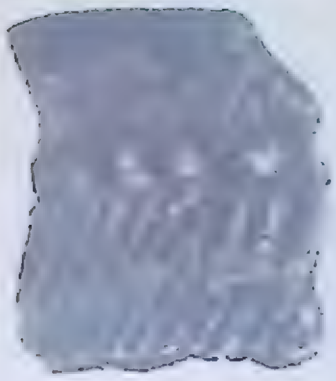
($\frac{1}{2}$ nat. size)

Pickering Branch Rim Sherds

FIGS.

1 Dentate stamp motif, exterior bossed rim sherd from the mouth of the Pic River, Ontario.
2 Linear stamp motif, exterior bossed rim sherd from the mouth of the Pic River, Ontario.
3 Linear punctate motif, exterior bossed rim sherd from near Trenton, Ontario.
4 Linear punctate motif, exterior bossed rim sherd from a site located on Treasure Island east of Kingston, Ontario.
5 Linear punctate motif on collar and neck of rim sherd from the Ault Park site near Cornwall, Ontario.
6 Push-pull motif on collar and neck of rim sherd from the Treasure Island site, Ontario.
7 Push-pull motif on rim sherd from the Brophy's Point site on Wolfe Island east of Kingston, Ontario.
8 Linear stamped criss-cross above horizontal push-pull motif, exterior bossed rim sherd from the Treasure Island site, Ontario.
9 Turtle-shell impressed obliques above horizontal linear punctate motif, exterior bossed rim from the Treasure Island site, Ontario.
10 Ontario Oblique pottery type from the Treasure Island site, Ontario.
11 Dentate stamp motif, exterior bossed rim sherd from Simcoe County, Ontario.

PLATE XV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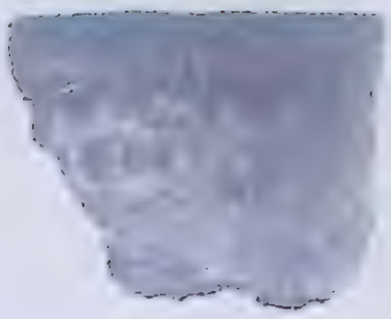
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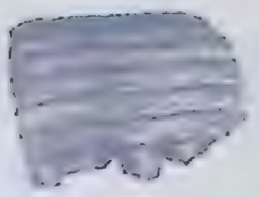
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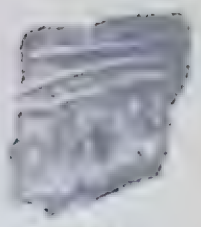
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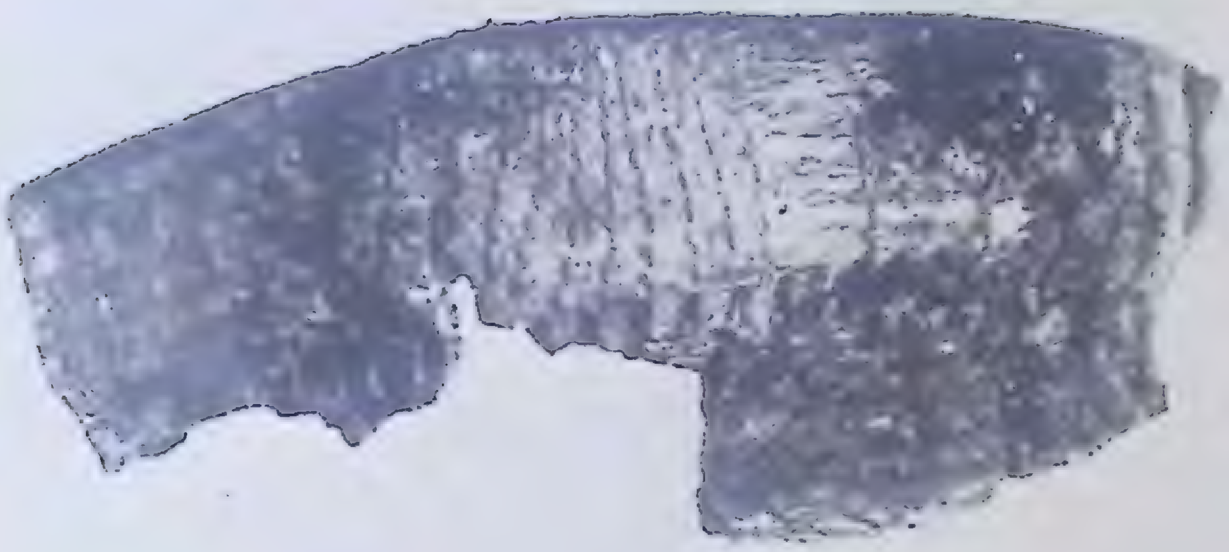
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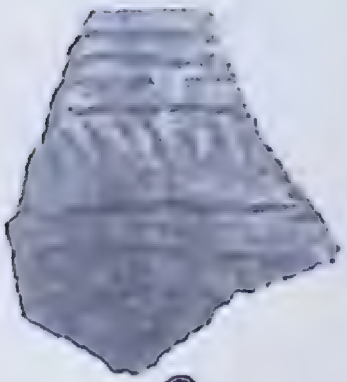
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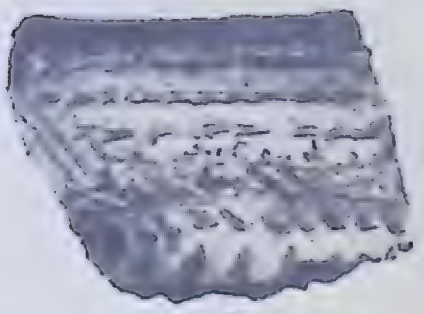
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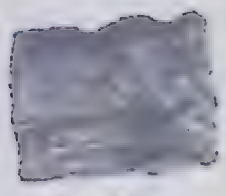
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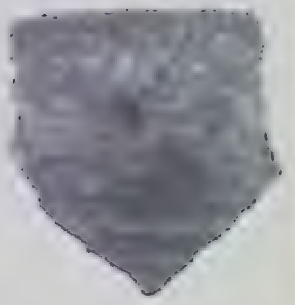
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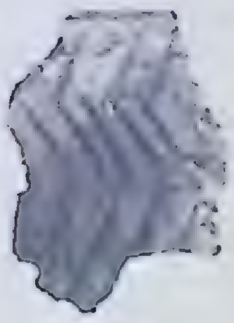
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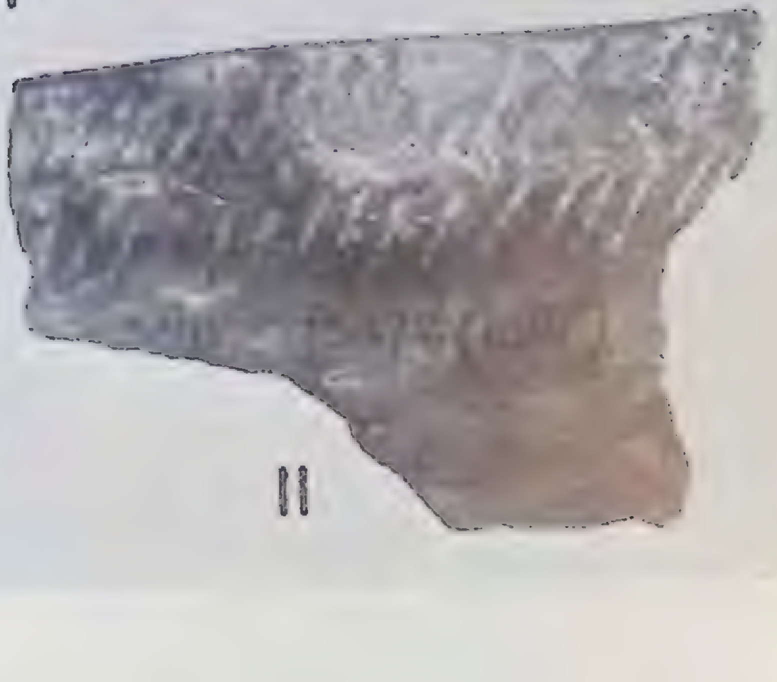
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PLATE XVI

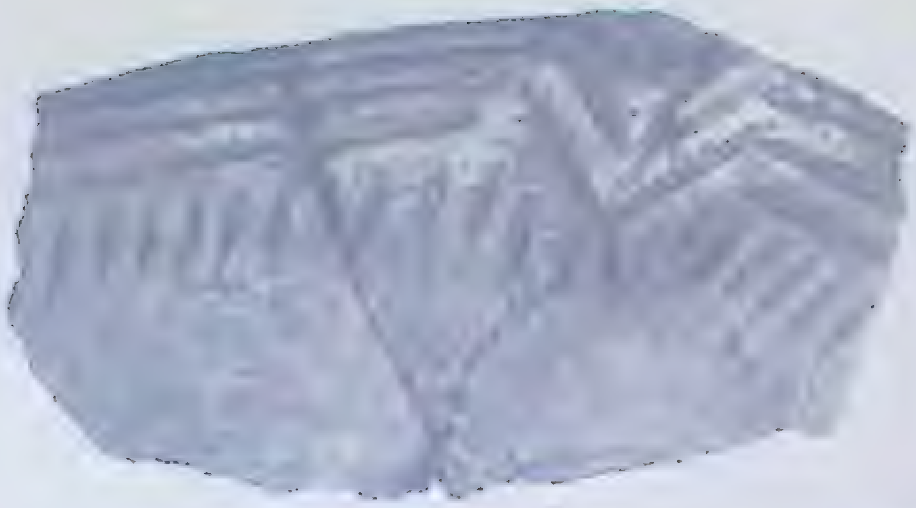
(½ nat. size)

Middle Ontario Iroquois Stage Artifacts

FIGS.

1 Ontario Horizontal pottery type with typical chevron design below castellation. Middleport site.
2 Lawson Incised pottery type. Middleport site.
3 Pound Necked pottery type. Halton County, Ontario.
4 Middleport Oblique pottery type. Middleport site.
5 Conical ring pipe. Middleport site.
6 Decorated conical pipe. Elgin County, Ontario.
7 Decorated barrel pipe. Middleport site.
8 Netting needle. Seed site. (*Specimen selected for purposes of illustration*)
9 Cylindrical antler flaker. Middleport site.
10 Cup-and-pin game variety of worked deer toe bone. Middleport site.
11 Side-notched triangular projectile point. Middleport site.
12 Slate pebble pendant. Pound site.

PLATE XVI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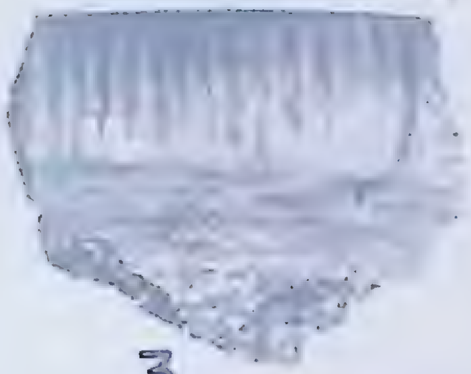
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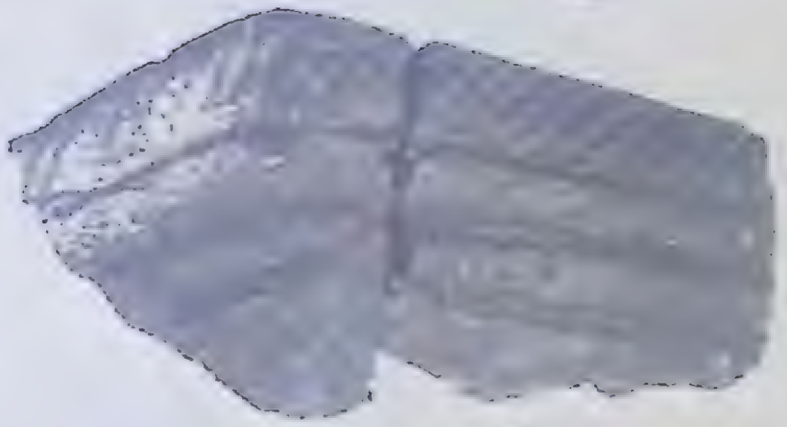
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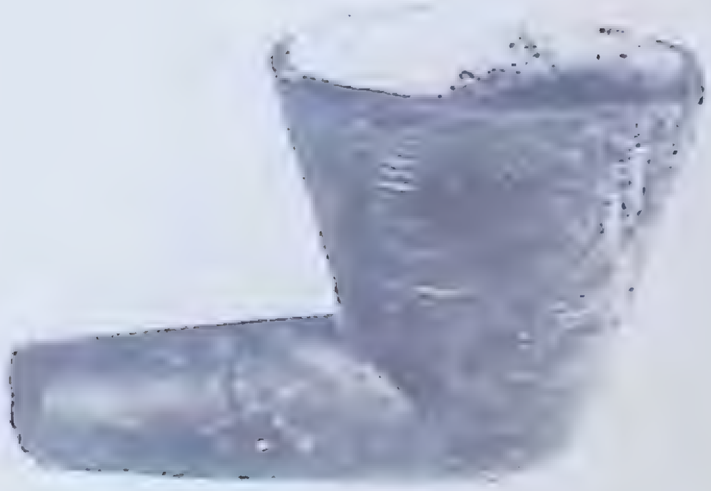
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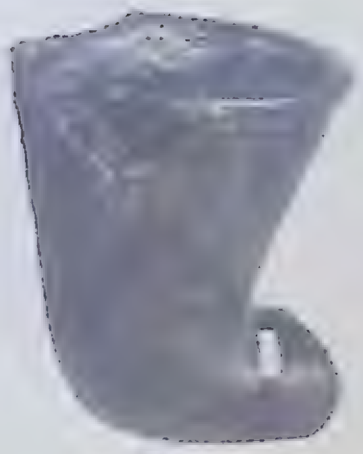
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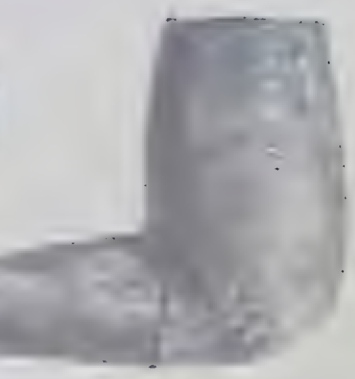
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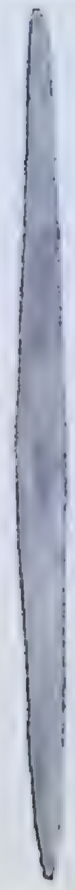
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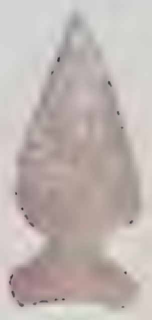
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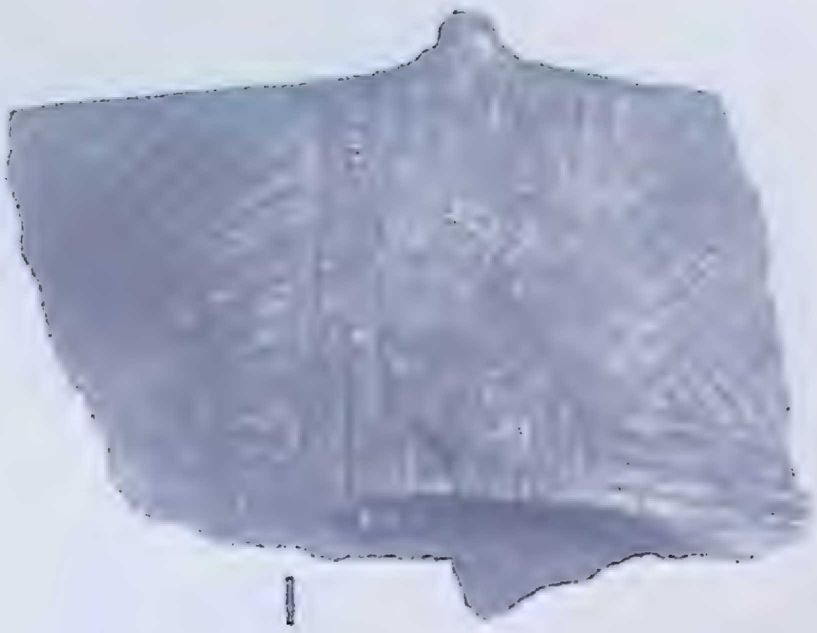
PLATE XVII

(½ nat. size)

Huron-Petun Branch Artifacts

FIGS.

1 Lalonde High Collar pottery type with typical Nubbin castellation. Doncaster site.
2 Copeland Incised pottery type. Doncaster site.
3 Iroquois ring pipe. Simcoe County, Ontario.
4 Plain trumpet pipe. Simcoe County, Ontario.
5 Elongated ring pipe. Elgin County, Ontario.
6 Seed Incised pottery type. Seed site.
7 Toggle variety of worked deer toe bones. Seed site.
8 Black Necked pottery type with strap handle. Lake Temiskaming, Ontario.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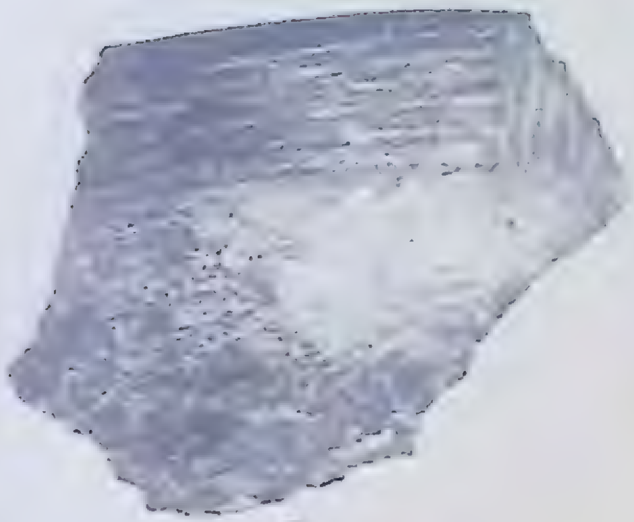
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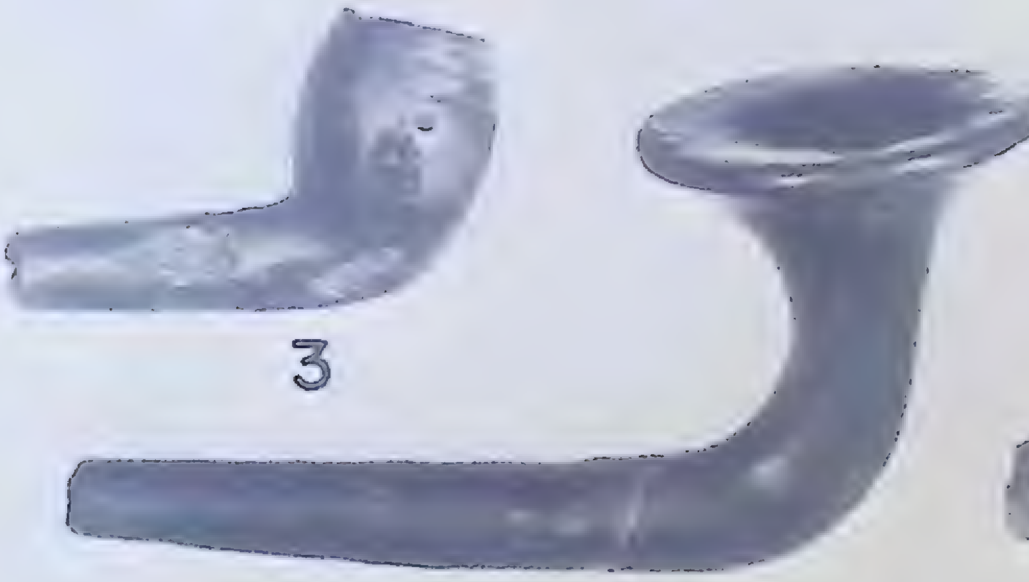
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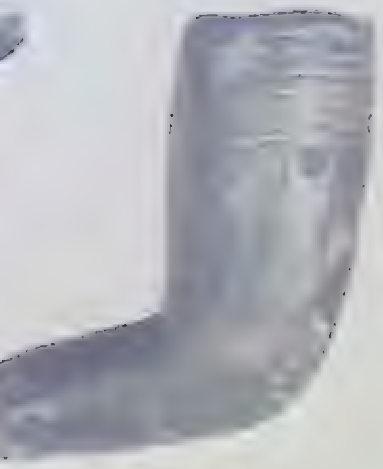
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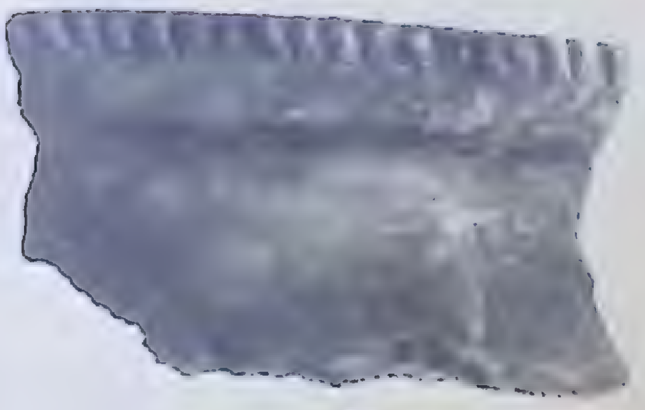
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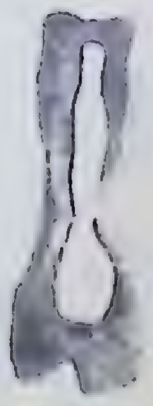
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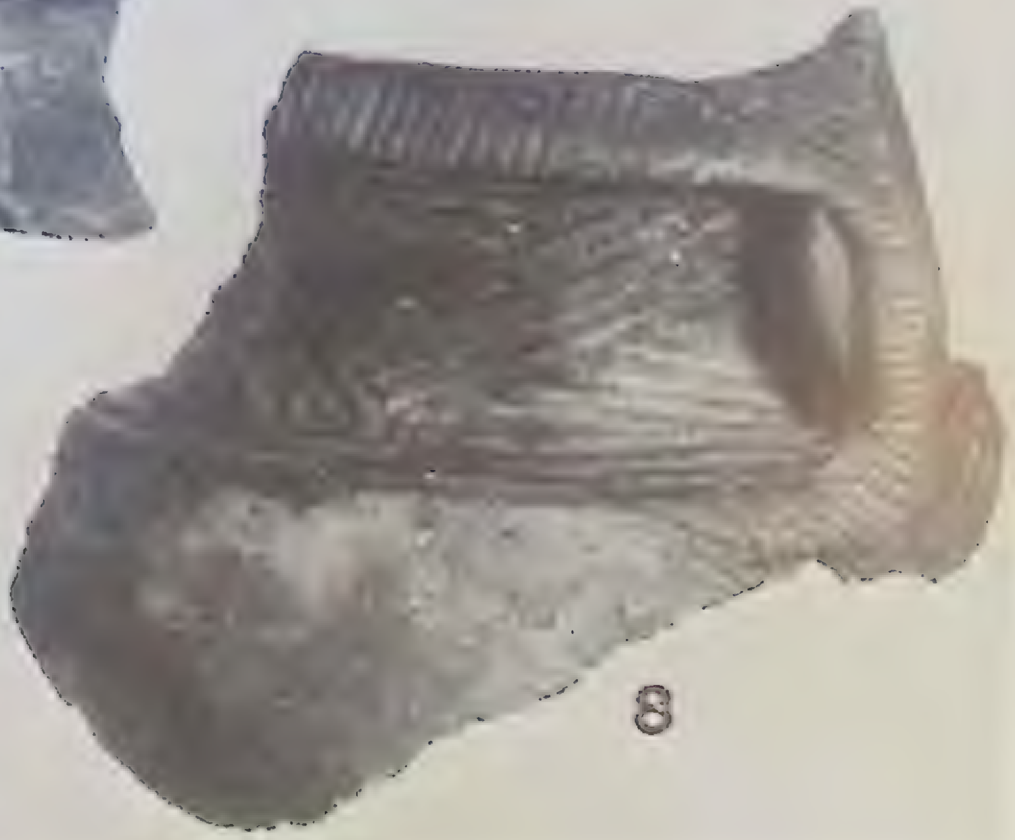
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PLATE XVIII
(½ nat. size)

Huron-Petun Branch Artifacts

FIGS.

1	Sidney Notched pottery type. Seed site.
2	Huron Incised pottery type. Seed site.
3	Warminster Crossed pottery type. Sidey-Mackay site.
4	Mortice pipe. Grey County, Ontario.
5	Coronet pipe. Simcoe County, Ontario.
6	Acorn ring pipe. Simcoe County, Ontario.
7	Collared ring pipe. Sidey-Mackay site.
8	Blowing face effigy pipe. Simcoe County, Ontario.
9	Pottery gaming disc. Young County, Ontario.
10	Triangular projectile point. Sidey-Mackay site.
11	Toggle variety of worked deer toe bone. Sidey-Mackay site.
12	Bone projectile point. Doncaster site.

PLATE XVIII

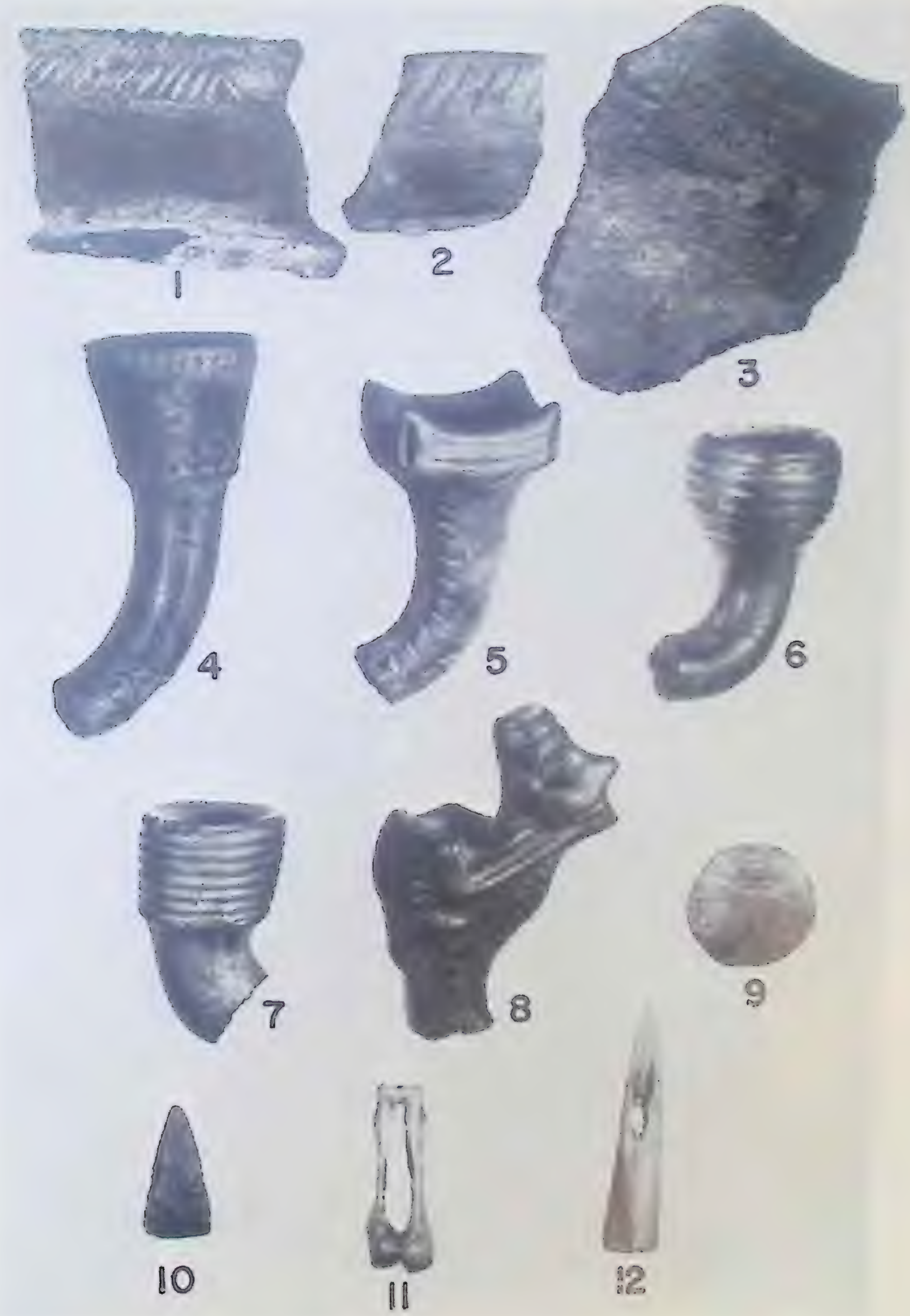


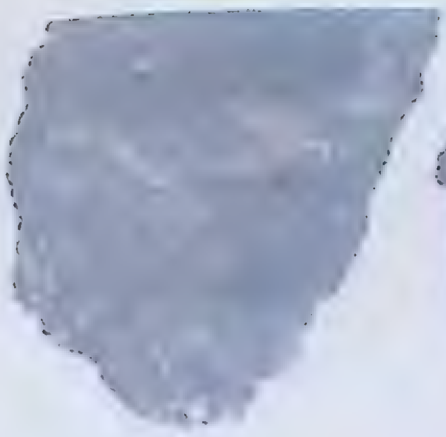
PLATE XIX

($\frac{1}{2}$ nat. size)

Neutral-Erie Branch Artifacts

FIGS.

1 Ripley Plain pottery type. Middleport site. (*Specimen selected for purposes of illustration*)
2 Niagara Collard pottery type. Lawson site.
3 Lawson Incised pottery type. Lawson site.
4 Lawson Opposed pottery type. Lawson site.
5 Effigy pipe. Middlesex County, Ontario.
6 Ringed vasiform pipe. Elgin County, Ontario.
7 Iroquois ring pipe. Lawson site.
8 Cylindrical antler flaker. Lawson site.
9 Cup-and-pin variety of worked deer toe bone. Lawson site.
10 Human skull gorget. Lawson site.
11 Triangular projectile point. Southwold site.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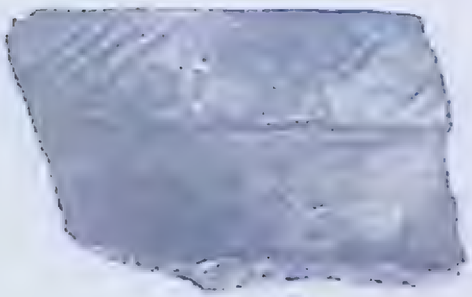
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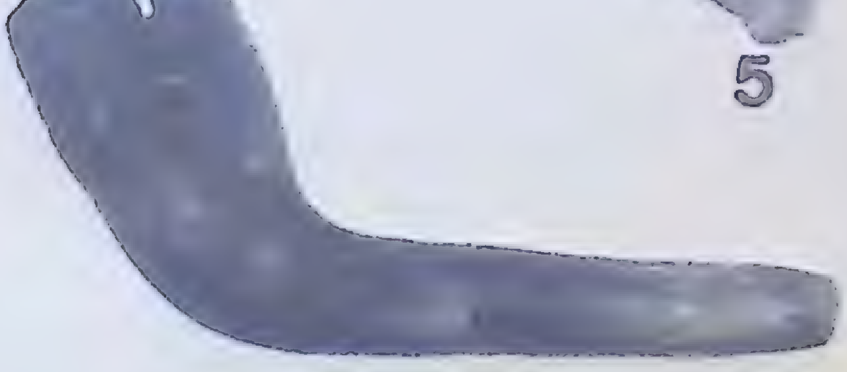
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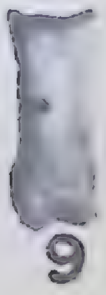
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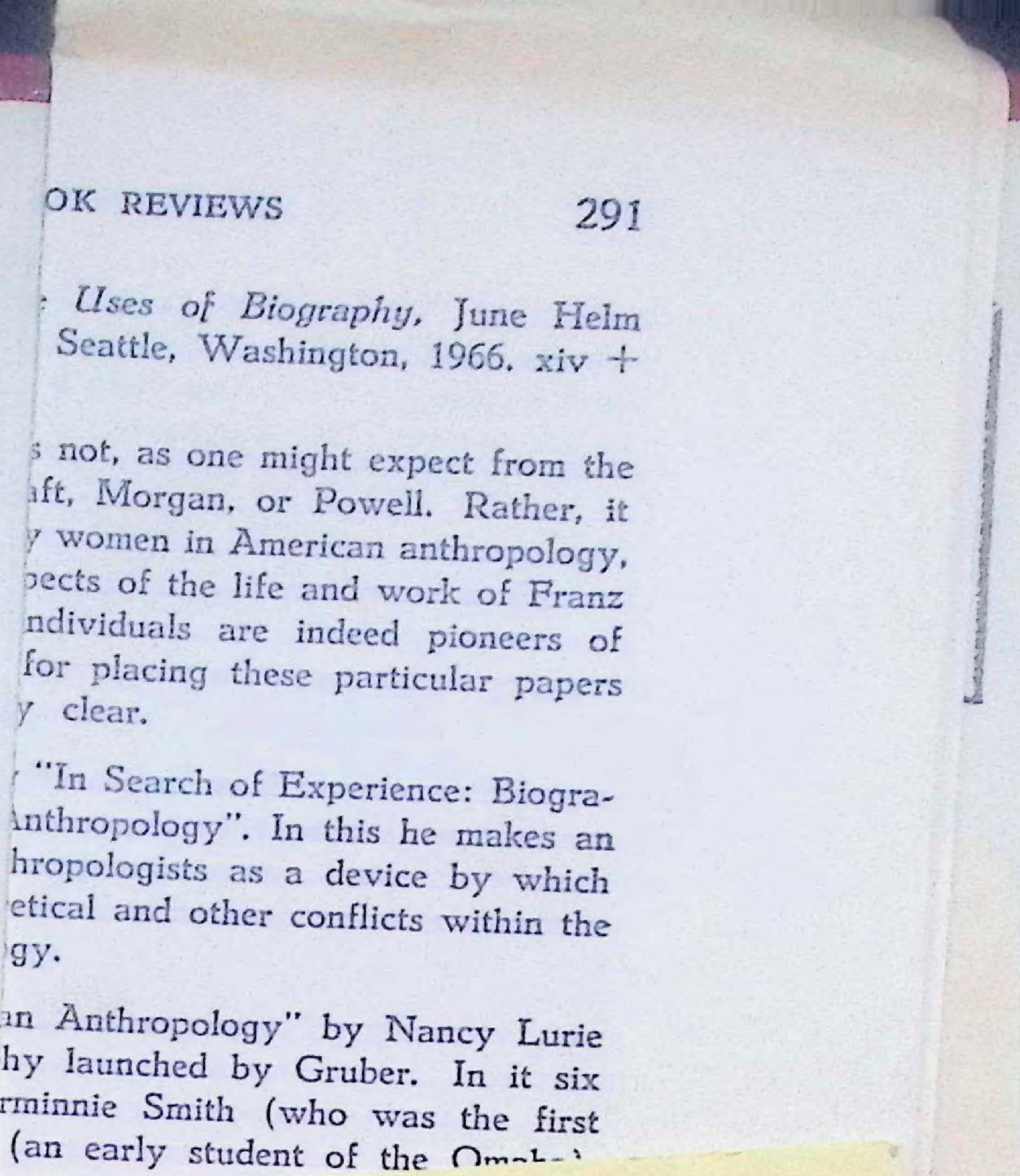

Uses of Biography, June Helm
Seattle, Washington, 1966. xiv +

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